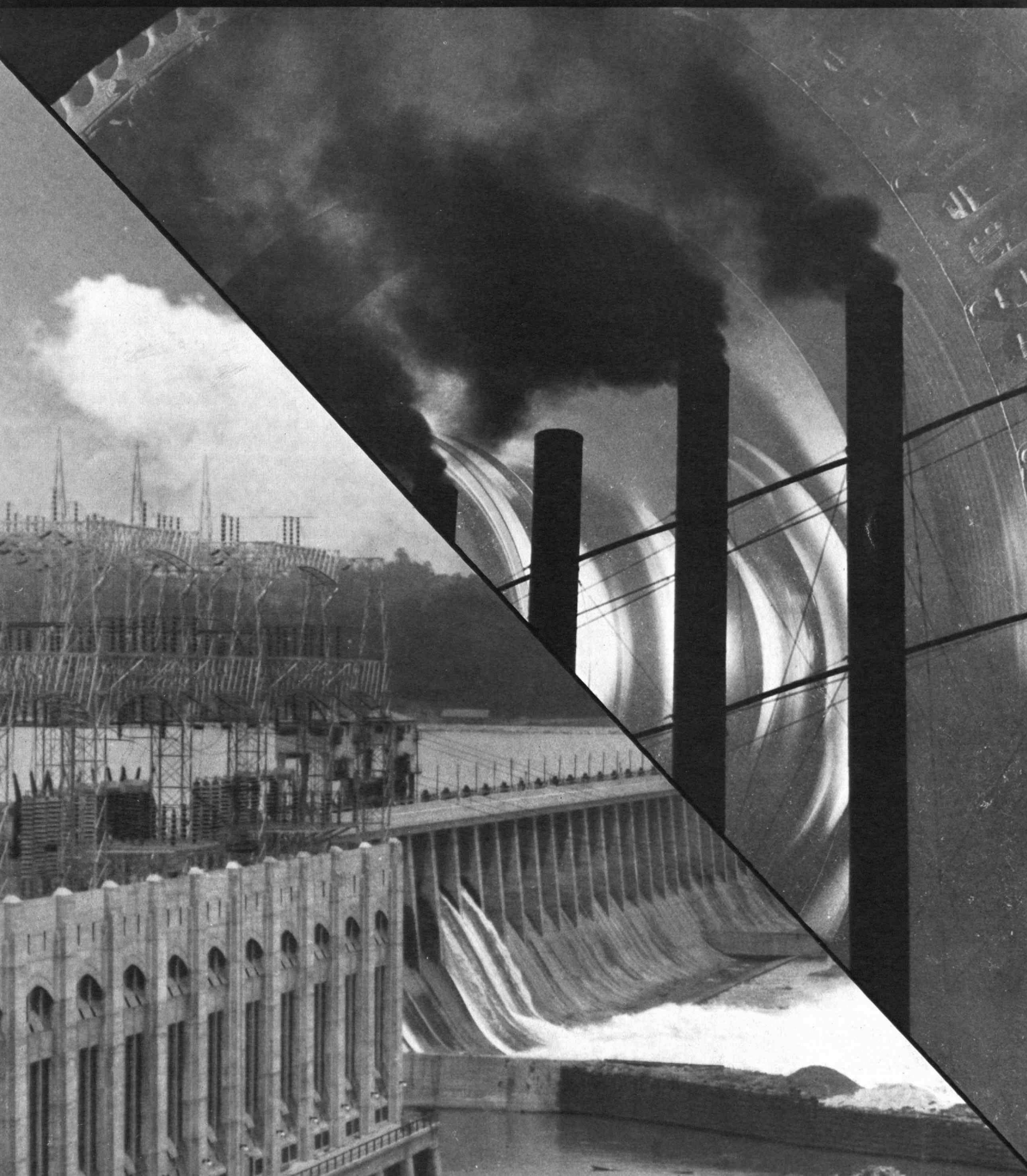


October 1933

TECHNOLOGY REVIEW

Title Reg. U. S. Pat. Office



technology review

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Let's hear you say
"They're Milder, Mate"



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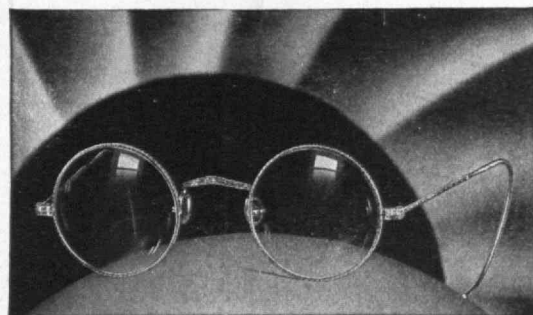
*—the cigarette that's Milder
—the cigarette that Tastes Better*

Chesterfield

THE TABULAR VIEW

WITH degrees from the Universities of Colorado (B.A.), Wisconsin (M.A.), and Illinois (Ph.D.), E. B. MILLARD came to M. I. T. in 1914 as an instructor in organic chemistry. At the present time he is Associate Professor of Physical Chemistry and Assistant Director of the Division of Industrial Cooperation. His publications include "Physical Chemistry for Colleges," "Laboratory Manual of Physical Chemistry," and papers in scientific journals. ¶ After attending the University of California, ROSS F. TUCKER came to Technology and received its S.B. in 1892. Before returning to the Institute in 1926 as Head of the Course in Building Construction, he was on the construction staff of the Thompson-Starrett Company. A skilled engineer and gifted teacher, he writes with eloquence and understanding on the problems of housing. ¶ T. C. PATTON, '25, is a Technical Assistant in the Institute's Department of Physics. ¶ Beginning with this issue, JOHN E. BURCHARD, '23, joins The Review staff of regular contributors. He is the author of numerous papers on engineering and housing subjects, and he collaborated with A. Farwell Bemis, '93, in writing "The Evolving House: A History of the Home."

LAST July the Institute of Radio Engineers, Inc., was unintentionally omitted from the table entitled "Chronology of American Professional Engineering Organizations and Related Bodies" (pp. 332, 333). Not unimportant, the I.R.E. should have been included in the list of "Professional Engineering Bodies." ¶ Connoisseurs of train speed and train lore will be interested in the following excerpts from a letter written by GEOFFREY ROBERTS, '25, of Johannesburg, South Africa: "I have enjoyed reading the articles on railroad trains that have appeared from time to time in The Technology Review. . . . You might be interested in a little data on the fastest train in South Africa, the *Union Express*. The train runs once a week, bringing the mails and passengers up from Cape Town, that arrive every Monday. . . . The run of 956 miles is completed in 29 hours 47 minutes. On the face of it, there is nothing particularly remarkable in this performance, but the route is quite mountainous and the standard African gauge of three feet six inches is a heavy handicap. . . . The heavy mountain type locomotives used on this train resemble American locomotives in appearance. . . . The coaches are all new, built since 1930, wood throughout, panelled on the outside, and finished in a natural shade. The sleeping cars are very long and articulated at the center, where there is a third truck. I noticed that the car bodies were mounted on rubber discs separating them from the steel under-frame. In addition to the dining car, a second car is carried, containing the kitchen and sleeping quarters for the dining car staff. A compartment is also provided in each sleeping car for the porter. . . . There is an observation compartment at the end of the train, entirely glassed in. . . ."



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Edward C. Fogg, Managing Director

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GOODYEAR COST PER TON . \$.0008
5 OTHERS COST PER TON . \$.00197



Section of cost-reducing Goodyear Style C Conveyor Belt

A LARGE gas-producing plant in St. Louis, Mo., recently completed its cost records on six belts used on their inclined coke conveyor, handling run-of-oven coke, cold.

One of these belts was a Goodyear Style C Conveyor Belt, 36", 28-oz. duck, 6 plies with extra 12" wide reinforcement, top cover 5/16" x 1/16", pulley cover, 1/32". *It was specified to the job by the G.T.M.—Goodyear Technical Man.*

The other five belts were all of good quality ordinary construction.

The records tell the story:

BEST OF 5 PREVIOUS BELTS

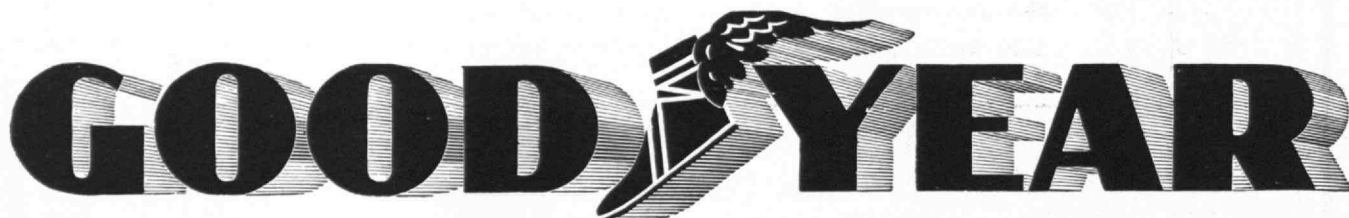
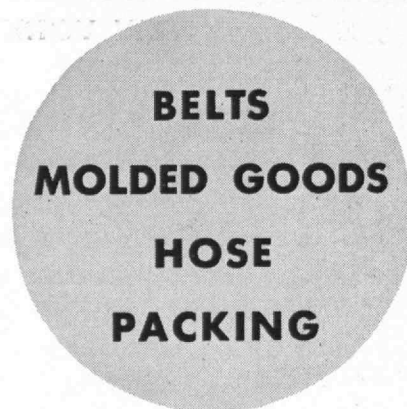
Total Life	1067 days
Total Tons	928,465
Cost Per Ton	\$.00197

GOODYEAR BELT

Total Life	1576 days
Total Tons	1,275,990
Cost Per Ton	\$.0008

The owner-user remarks that an accident undoubtedly prematurely ended the usefulness of the Goodyear Belt; also notes that the Goodyear originally cost nearly \$600 less than the best record belt of the five others.

This is the kind of cost-reducing performance assured by G.T.M.-specified Goodyear Mechanical Rubber Goods. Why not see if the G.T.M. can save you money? Write to Goodyear, Akron, Ohio, or Los Angeles, California, or call your nearest Goodyear Mechanical Rubber Goods Distributor.



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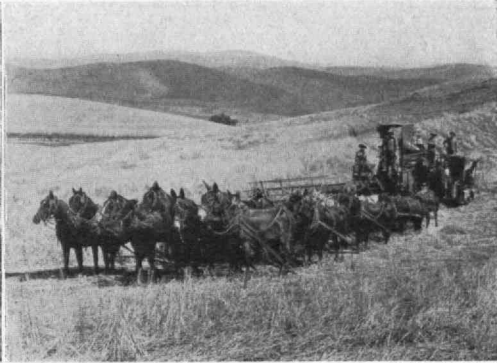
EDITED AT THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY



A. M. Prentiss



H. Armstrong Roberts



A. M. Prentiss



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From photographs by Press Pictures and William Rittase

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Editor
J. RHYNE KILLIAN, Jr.

Publisher
HAROLD E. LOBDELL

Business Manager
RALPH T. JOPE

TENNEY L. DAVIS

Editorial Associates
JOHN J. ROWLANDS

JOHN E. BURCHARD, 2ND

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DAY'S END

© F. S. Lincoln '22

THE TECHNOLOGY REVIEW

Vol. 36, No. 1



October, 1933

Falling Apples

Hints to the Young Scientist in Search of an Opportunity

BY E. B. MILLARD

OF THE serious problems which arise early in the mind of a scientist recently crowned with his degree and inclined to press on in his studies, one of the most perplexing is whether to elect pure science or applied science for his field of endeavor. When this basic decision has been made, he must then select a suitable research problem in his field, and it is a matter of grave concern to choose one which can be solved in a reasonable time with the facilities at his disposal, and which will be likely to attract more than passing attention among the vast number of researches being published.

This young man has probably heard it said that some person is interested in pure science, or in applied science, with the implication that he is not much concerned with the other branch of science. Yet these branches are each indispensable to the other, and frequently indistinguishable from one another. If pure science does not continue to make new basic discoveries, applied science will shortly have nothing to apply. And if applied science does not adapt these discoveries so that industry may prosper and support pure science, research will languish. For one might justly consider the purer aspect of science as industry's "white-haired boy," sometimes too busy in the pursuit of its own ends and enjoyment to think of its source of nourishment. Most of the instruments used in pure science research are the products of industrial science, and without an industrial source for

CHEMICAL USES OF UNHEARD SOUNDS — HOW A BACILLUS LOWERS COSTS — THE SEARCH FOR NEW PERSUADERS — ALUMINUM SHEETS VS. WOOL BLANKETS — MODERN TEXTILE CHEMISTRY FROM THE DARK AGES

apparatus, vacuum tubes, wire and chemicals, modern research would be beyond the means of a "pure" scientist, though King Midas endowed him with all his gold.

Coöperation between them must always be more than an exchange of courtesies, it must be a real interlocking of their interests. If they meet only at the tea table, and never

at their work, both will suffer the consequences of their isolation. It has been truly said that man cannot live by bread alone, and it seems equally probable that science (pure or applied) cannot live long on tea.

The fact that opportunities in science surround us on all sides is not so commonly appreciated as it should be. Scientific research offers unbounded opportunities, whether for achieving academic distinction, service to one's fellow men, personal enrichment, or the thorough enjoyment of a busy life spent in doing something worth while; and it would be a most unusual research which recompensed a scientist in one of these ways to the total exclusion of the others.

A young man who wishes to find a suitable place to begin need only think logically through any important process he has studied with moderate thoroughness. The first suggestion to occur to him will doubtless be obvious enough to have occurred to someone else, but careful thought, pressed through to the end, will inevitably find something worthy of more careful examination. Not many people think at all, and of those who do so,

only a few think straight for very many minutes at a time. The apple which is supposed to have set Newton upon the path of discovering the laws of gravitation was not the first falling object to be observed; it was only the first apple to hit the right head.

The purpose which prompts me to point out a few instances illustrating how opportunities may be found under foot is not to make fun of those who have missed them. My purpose is primarily to stimulate young scientists to consider whether they are not missing opportunities similar to them, and in plain sight. In particular, it is to suggest that they inquire why or how any common scientific or industrial process is carried out, especially when it has been done in the same way for a long time.

Both sound and light are manifestations of wave motion, in different media of course, and of varying wavelength for both, but having some aspects in common. The eye is sensitive to light of brightness ratios, from that barely visible to that barely tolerable, of about one to ten billion. By a curious physiological coincidence the ratio of intensity of the faintest perceptible sound to the loudest bearable sound is also about one to ten billion. If visible light and audible sound are compared, it is found that light waves are very very short compared to sound waves; and that light moves incomparably faster than sound.

Physicists have extended our knowledge of light, in its broad sense of including all radiations, far, far outside of the single "octave" of radiations which constitutes the visible range. The frequencies from the longest radio-waves, a mile or so in length, to the shortest gamma rays, 10^{16} or 10^{18} to the mile, represent more

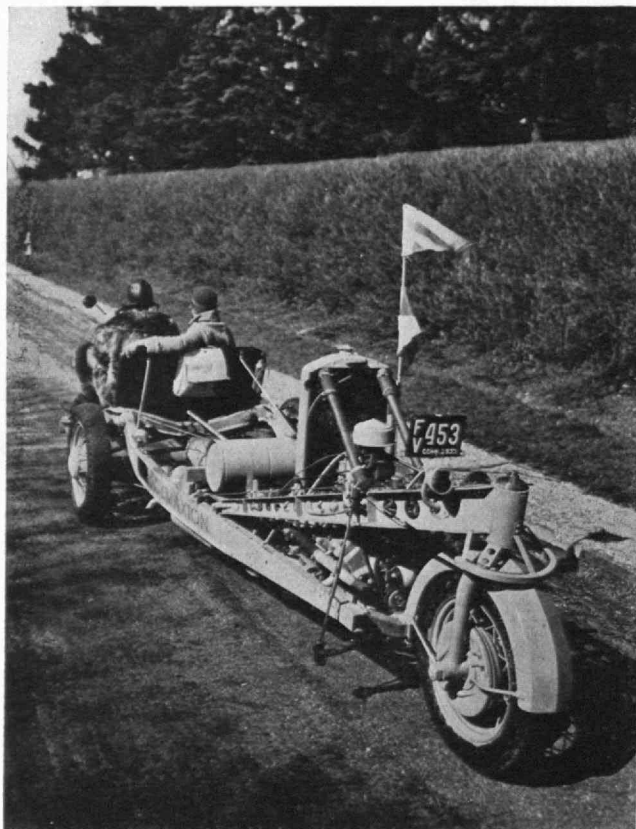
"octaves" than one can comprehend. And there is no assurance that much longer or much shorter waves may not be discovered.

Our ears are readily able to hear six or eight octaves of sound, or even eleven octaves for extremely sensitive ears, and is it not curious that the development of super-sonics, the extension of *sound* frequencies to a million times or so the audible frequency, should have lagged so far behind the parallel research in light?

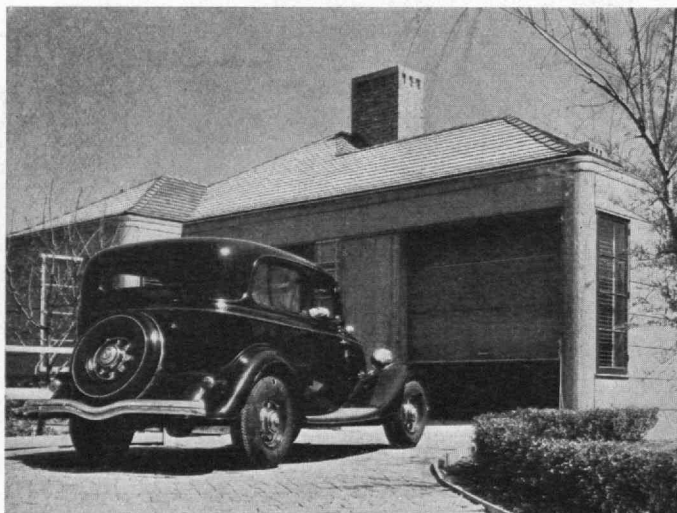
This interesting sub-division of acoustics was born (or re-born) about 1918 or 1920, a child of the war-time development of submarine detectors. It has grown, and is still rapidly growing, along lines which may surprise its parents, as frequently happens in the development of children born to parents in their late maturity. (Before discussing this work, the reader may find it stimulating, or perhaps disappointing, to pause for a brief moment and assemble his own entire information, if any, upon "infra-sonic" waves, compression waves of lower frequency than the audible limit.)

It seems like a long step from acoustics to chemistry or biology; yet when sound waves of supersonic frequency pass through water containing dissolved oxygen, hydrogen peroxide is formed at once in considerable quantity, which is beyond question a chemical change. Similar oxidations of other substances are now under investigation, and many aspects of chemistry are yet to be studied in connection with supersonics. Already, some evidence is at hand that sound of very high frequency produces effects upon a photographic plate.

About all that would be required to complete this story is a report that someone had been impelled to try the effect of intense audible (Continued on page 35)



F. S. Lincoln, '22



Barber-Colman Co.

Above: Radio-controlled garage door of the Lumber Industries House at the Century of Progress. The door opens and, at night, the garage lights are turned on, all automatically, when a small knob on the instrument board of the car is pulled by the driver as the car approaches the garage

Left: What Starling Burgess and Buckminster Fuller are pleased to call "Model C2 Dymaxion Transport." The two abreast wheels carry 75% of the total weight, serve as tractors and brakes; the single stern wheel serves as "rudder." The body, completely streamlined, is reputed to have an air resistance one quarter that of an ordinary sedan, conventional style

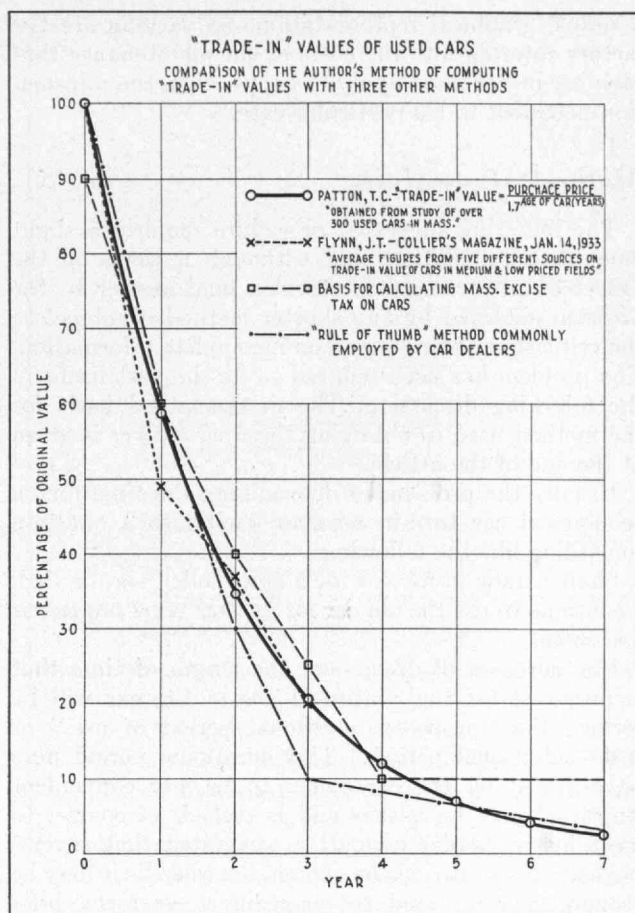


Fig. 1

THE AVERAGE automobile owner has probably more than once been perplexed by the problem of when to "trade-in" or "turn-in" his used automobile for a new model. He realizes painfully that the maintenance of the old car in good operating condition represents a gradually increasing cost each year, that repair bills are more frequent and more sizable. Yet he is confronted with the more serious alternative of trading-in the old car for a new automobile and expending an amount of money equal to the differences in values between the turn-in value of the old car and the dealer's price for the new model.

During the last three years this much-debated question has been more seriously considered than ever before. There is a wealth of opinions, some decided, some tentative, some supposedly authoritative, and some prejudiced. From this maze, the average car owner has little chance of separating the pertinent information relating to his particular case. More often than not, such information is entirely lacking.

It should be stated in the beginning that the author, in presenting a rational method for determining the economical time for trading-in a used car, does not pretend to evaluate the intangibles which so frequently impel an owner to buy a new car. The esthetic appeal of a new style, the desire for something new, keeping up with the Joneses, the desire for innovation and new gadgets, pride, the satisfaction of owning a new product — these are influences not susceptible to measurement. But the article does offer the average full-time car

Shall I Trade-In My Car?

A Suggestion for Determining the Economical Time for Trading-In a Used Car

BY TEMPLE C. PATTON

owner a method for quantitatively determining the expediency of turning-in the old car for a new one *when monetary considerations and reliable performance dictate the decision.*

Most car owners treat the buying of a new car as a single operation; the probability of a car purchase by him at any definite time is usually a function of the economic conditions which affect him at that time. A little reflection, however, serves to show that if car ownership is to be continuous, it is wise to consider car costs as averaged over a number of years. An intelligent discussion must be based, consequently, on costs as distributed over a period of years.

Turn-In Value

It is well known that every car (once run) has a turn-in value which decreases with years of use and that this depreciation in value takes place despite the most meticulous care the owner gives his car. Probably most car owners are already familiar with the casual manner with which the car salesman quotes a turn-in value. It is merely a question of picking out from previously compiled data (prepared by a statistical organization) a trade-in value which is dependent on the age of the old car, its make, and a few other minor factors. The car owner can protest the quoted value, he can point out that his car is in excellent shape, that a complete over-hauling job has just been done on the car, that the car mileage is extremely low, yet, after the most violent haggling, it is doubtful if the quoted trade-in value will be altered by more than 5%.

The turn-in value, of course, varies somewhat with the make of car, its condition, the mileage recorded, and with many other factors. Still, in the field of low- and medium-priced cars it is amazing how uniform the depreciation is when expressed as a function of the car age (see Fig. 1). The relation given below is based on data gathered from many different sources and, though a wide deviation may occasionally occur, due to some exceptional circumstance, the relation is fairly accurate for low- and medium-priced cars.

$$\text{Turn-in Value of Car} = 1.7 \frac{\text{Purchase Price of Car}}{\text{Years (Age of Car)}}$$

Since this relation is cumbersome to use, resort has been made to a nomographic or alignment chart (Fig. 2) which gives a graphical solution to the equation. The three graduated scales on this chart refer to the PURCHASE PRICE OF CAR (EXPRESSED IN DOLLARS), AGE OF THE CAR (EXPRESSED IN YEARS), and the TRADE-IN VALUE OF THE CAR (EXPRESSED IN DOLLARS), respectively. The two dotted lines (straight) running across the page are typical solutions to two cases.

Case one (1) treats of a two-year-old car which originally cost \$1,400. From the chart it can be seen that the straight dotted line connecting these two values, as located on their scales, intersects the trade-in scale at a turn-in value corresponding to \$485.

Case two (2) treats of a four-year-old car which originally cost \$600. The turn-in value in this case can be seen to be \$70. The only restriction in the use of the chart is that a straight line must be used to connect the scales.

Therefore, in determining the economical turn-in time for a used car, it is obvious that one of the two factors affecting the problem solution — namely, the car value at various car ages — is fixed and definite to within a few per cent of an arbitrary value which can be deduced from Fig. 2.

The other major factor which must enter into a rational solution of the problem is the item of car maintenance costs. This factor varies widely, however, with different car owners and it is unwise to try to correlate such divergent data by means of a single equation or by

a simple graphical representation. So varying are the factors entering into the costs of car maintenance that each car owner must apply to his problem the information pertinent to his particular case.

Method of Analysis

The following suggested procedure requires a slight amount of calculation, and, although it takes on the aspect of an income tax return, a final answer to the problem obtained by any shorter method is subject to the criticism of being based on incomplete information. The problem has been reduced to its simplest terms in the following discussion. The mathematical basis for the method used in obtaining the final answer is given at the end of the article.

Usually the problem of determining the time for an economical car turn-in resolves itself into a question something like the following:

Shall I trade in my car for a new model now, or shall I continue to use the old car for another year? two years? and so on?

For purposes of discussion, the length of time that is proposed for the continued use of the car will be termed the "proposed additional period of use," or just "additional period." This additional period may be assumed by the car owner to be any convenient length of time he wishes and is picked, of course, to meet his particular case. It is suggested that several trial additional periods be chosen, for whereas it may be economically unsound to maintain a car for a brief additional period (one year) and then make a trade-in, yet it may be economically wise to use it over a two-year additional period and then arrange a trade-in on a new car. This can be qualitatively explained by the fact that the car may require excessive expenditures during the first additional year of use, whereas when this expense is spread over a two-year additional period the car expenditures per year may be considerably less.

With these facts in mind, the car owner must next assemble information relating to his own car. The work sheet which is outlined on the opposite page contains the questions that must be answered, together with directions for using the answers to compute the costs which must be compared in order to determine whether the car should be turned in. Two problems (Example I for a medium-priced car; Example II for a low-priced car) are analyzed on this work sheet to illustrate the method, and blank spaces are provided so that the reader may use them to analyze his own problem. The accuracy of the final result obtained will be in proportion to the accuracy of the figures employed.

Having worked through these preliminary questions and calculations, the car owner is in a position to determine whether it is economically sound to turn in his car on a trade-in at the present time, or use it for a longer period of time, based on the period proposed in Item 6.

An immediate answer to the problem, now possible, consists merely in comparing the value obtained in Item 9 with the value obtained in Item 10 for any particular case.

(Continued on page 26)

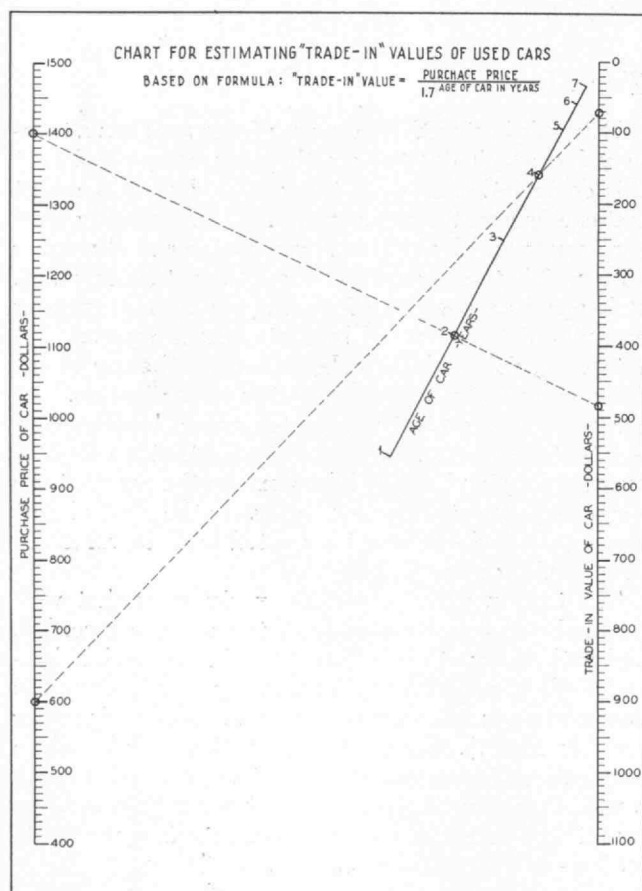


Fig. 2

WORK SHEET

For Determining Economical Time for Car Turn-In

(In the last column readers may analyze their own automobile turn-in problem by the method explained in the accompanying article)

ITEMS	Example I	Example II For Readers' Use
1. What did the car originally cost? (Purchase price of car)	\$1400	\$600
2. How old is the car? (Present age of the car in years)	2 years	4 years
3. What is the present turn-in value of the car? (Derive from chart on opposite page or obtain quotation from a reliable dealer.)	\$485	\$70
4. How much has the car cost since its initial purchase, excluding constant costs? (Exempt costs which are the same every year; i.e., such constant costs as liability insurance, garage rent, interest charges on investment (simple interest), or any other constant recurring costs which may be regarded as fixed yearly charges. Include such costs as repairs, tires, replacements, repainting, re-upholstering, overhauling charges, new parts, taxes, fire and theft insurance, etc., or other costs entering into car maintenance representing variable costs which are more or less dependent on the car age.)	\$200	\$320
5. Calculate what the past average yearly cost of the car would be if a turn-in were made at the present time (excluding constant costs) (Add Items 1 and 4, subtract Item 3 from this sum and divide the result by Item 2.)	$\left(\frac{200+1400-485}{2}\right) =$ \$558	$\left(\frac{320+600-70}{4}\right) =$ \$212
<i>Note: The result obtained in Item 5 is a definite value for any one car and at any particular time. Consequently it is necessary to calculate it only once.</i>		
6. What ADDITIONAL PERIOD is proposed for the continued usage of the car? (Assume any period in years desired)	2 years	1 year
7. Estimate how much money must be expended on the car during the proposed additional period (Item 6) to maintain the car in good running condition (Neglect same constant costs that were excluded in Item 4.)	\$450	\$190
8. What added depreciation will the car suffer during the additional period of use? (Derive from Fig. 2 or obtain information from car dealer.)	$(485 - 170) =$ \$315	$(70 - 40) =$ \$30
9. Add Items 7 and 8. (Cost of keeping old car for additional period.)	\$765	\$220
10. Multiply Items 5 and 6. (Cost of having new car during additional period)	\$1116	\$212



© Aerial Surveys of Calif., S. F.

Where the San Francisco-Oakland Bay bridge will span the Bay. The bridge will extend from a position on San Francisco's waterfront (slightly to the left of the center of the picture) to Yerba Buena Island, pierce the Island by tunnel, and then extend across the East Bay to Oakland

Cities Fit

A Planning Authority

By Ross

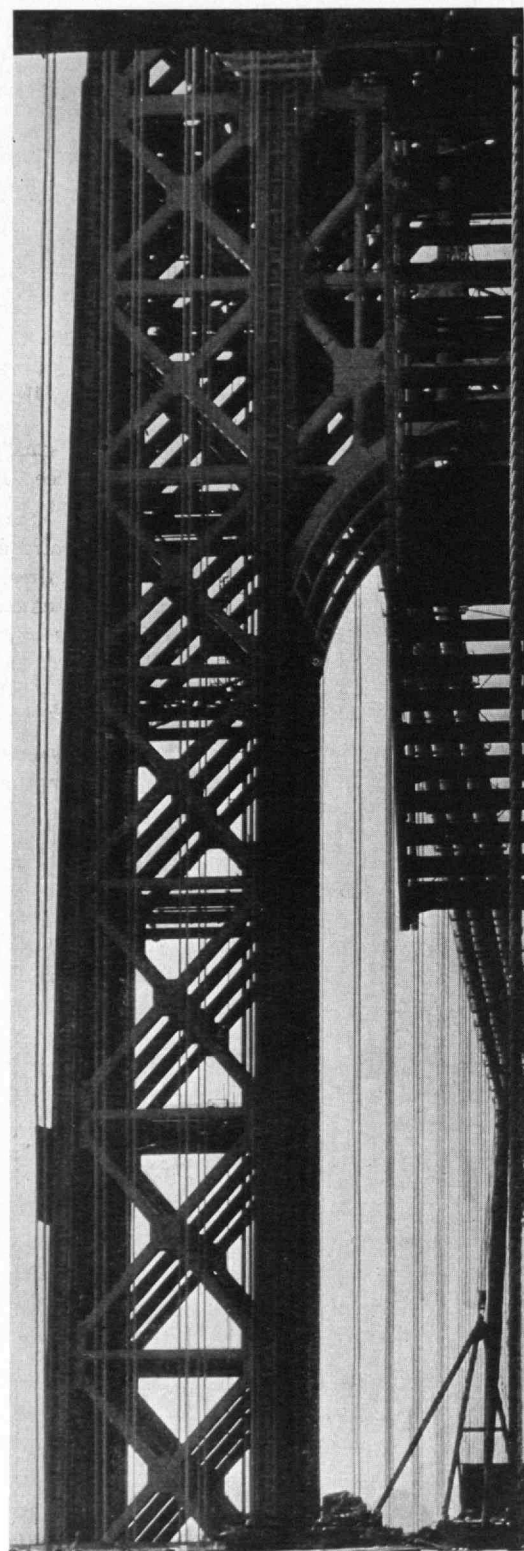
UNTIL now this country has "just grown." Like the colored wayfarer, it has not known where it was going but it has been on its way. The leadership has been supplied by private initiative, but the way has been the road to profits or to the greatest prospect of profits. Nowhere has there been a greater exploitation of the people by unrestrained private initiative than in land speculation and the development of real property. Millions of flimsy houses have been foisted on the people by the land developer and the speculative builder through an alluring system of financial legerdemain that has imposed costs upon the home owner far in excess of real value. Our cities reek with slums and are disfigured with blighted areas. They are cluttered up with skyscrapers that darken the streets, cut off light and air, and crowd the sidewalks with their great populations because the property line is an inalienable right that private initiative must jealously guard in order to squeeze the last nickel out of its unearned increment.

Against this system, the people have set up a defence by establishing building codes and zoning laws in a feeble attempt to safeguard their lives and bring a little order and stability into the development of their cities and towns, but they need to go much further and take a much bolder step, by the establishment, in every State, of a Planning Authority endowed with real power and entrusted with the high responsibility of restraining private initiative for the common good.

The Planning Authority should be a board or commission of engineer-economists of the highest character and attainments, set apart from politics, and having such financial support as will remove it entirely from outside interests or influence. It should have all of the standing and dignity of a Supreme Court. It should be permanent and it should be endowed with broad powers, independent of legislative control, under the executive branch of the government, responsible only to the Governor. It should have three divisions — a division of Planning and Layout; a division of Land Valuation and Taxation and a division of Regulation and Control. For the larger concentrations of populations, there should be a sub-division of the Authority, having for its jurisdiction a county or a group of counties, constituting a metropolitan area.

The Division of Planning and Layout should make an economic survey of the entire state and prepare a master plan. It should have jurisdiction over all zoning and planning boards and coördinate the work of all communities to the master plan. Many communities have planning boards or zoning boards that are inoperative or do not know how to function. It cannot be expected that people can be found in all communities who have the vision and foresight or sufficient knowledge of the many implications of the problem to solve it wisely and intelligently. Neither should each community solve its problems without regard to or consideration of the problems of its neighbor.

The Planning Authority should be the source from which every community could draw expert advice and service within the general plan set up by the Authority itself. The Authority should plan all highways and develop transportation to its best economic use. It should direct and control the movement of populations, eliminate slums, and stabilize the use of land in order to minimize blighting. It should set aside areas of low priced land strategically located to centers of employment for the building of homes for those in the lower income groups, who heretofore have been unable to own their own homes.

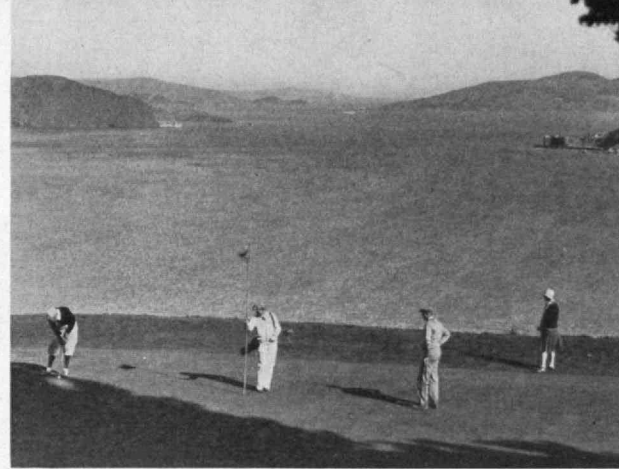


Professor Tucker's suggestion of a Planning Authority New York Port Authority has made a financial success Washington Bridge (shown above), the two Arthur Kill agreed that the Authority plan is one of the most in- been created in American political life. Its success in Boston, Virginia Port, and New York State Power

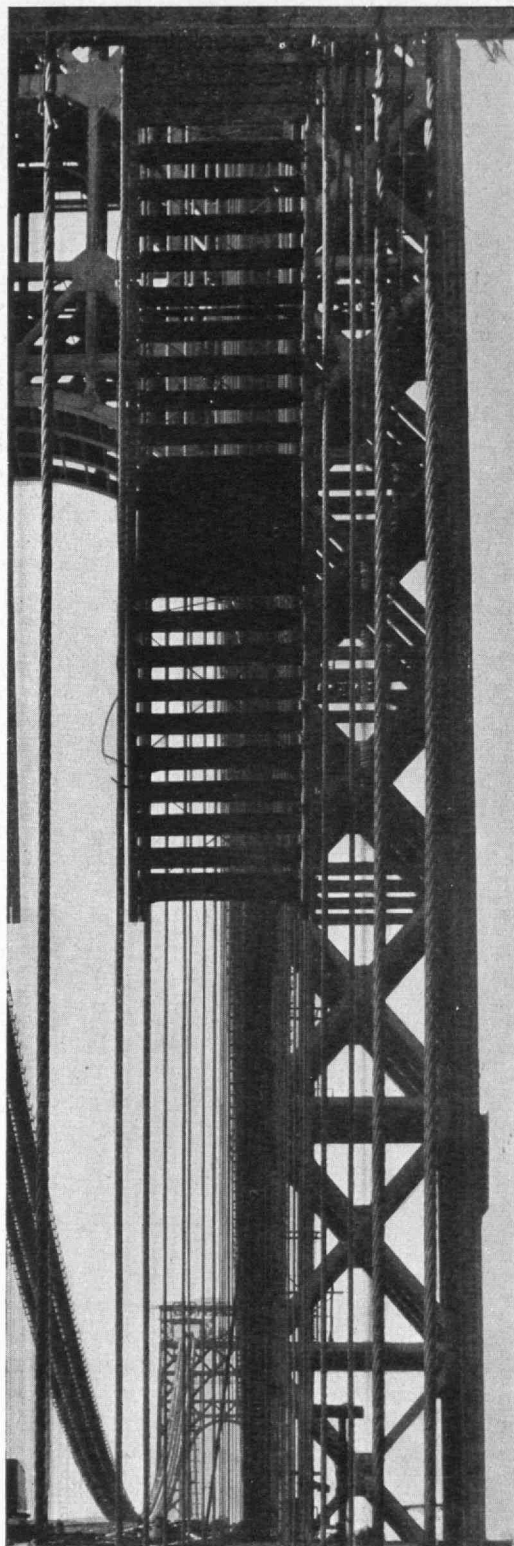
To Live In and What It Might Do

F. TUCKER

Site of San Francisco's Golden Gate Bridge. This great structure which will be the longest span in the world will extend from Fort Point on the right to Lime Point on the left



Californ



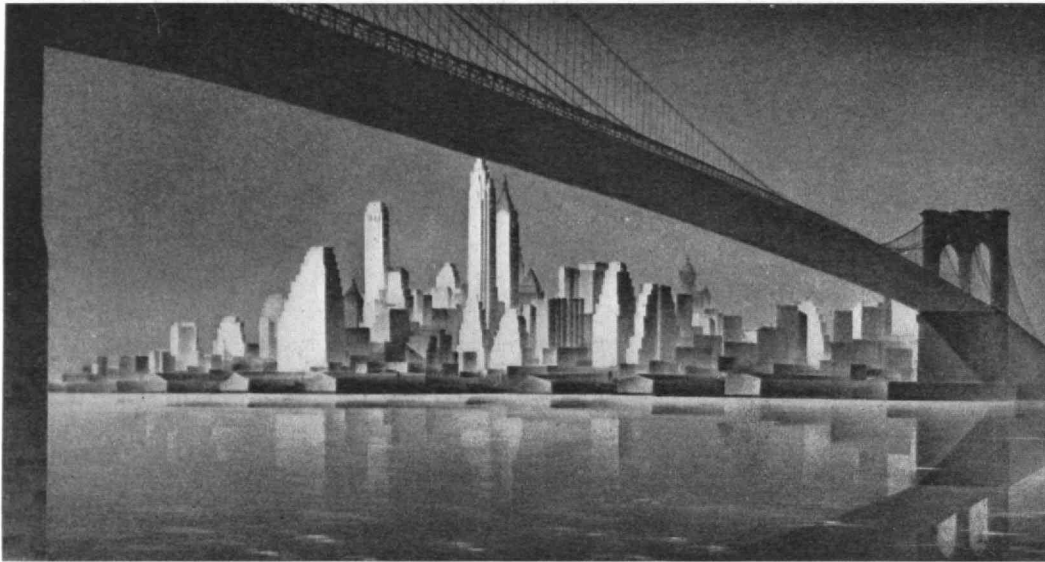
Margaret Bourke-White

is based upon some highly successful precedents. The of the building and operation of the great George bridges and the Freight Inland Terminal. It is generally genius and potentially useful devices which has yet New York has suggested the Tennessee Valley, Port of Authorities.

With the coming of shorter working hours, working people are finding themselves with much spare time. Whether or not this will be an unmixed blessing will depend upon the use to which the leisure time is put. The city is the worst possible place in which to spend it. Idleness is to society what corrosion is to steel. Against this insidious disintegration society must guard itself. The saloon, the pool room and the movies supply no inspiration and take a heavy toll. People with spare time should live in the country and in their own homes. They should have a plot of tillable ground, a work shop and access to the library. Society must provide for the profitable use of time as seriously as it now provides for the education of children, by setting up those agencies that will encourage and inspire the people to improve themselves.

The automobile is destined to play a greater and greater part in the decentralization of city populations. All that is needed is available areas of low cost land upon which low cost housing may be built, under a financial plan that will enable the home buyer to escape the accumulative speculative costs that have burdened the home owner heretofore. It will shortly be possible to build better and more substantial houses at much lower cost than have thus far been produced, and ways and means must be found to make them available to those who must work in cities but who would welcome the opportunity to enjoy the freedom and independence of their own homes. This also is the answer to the problem of slum clearance and Society, through its Planning Authority, should set aside the land and supply the opportunity for the building of low cost homes, by the state, for those in the lower income group and by investment foundations for those whose incomes are sufficient to make them economically independent.

CONSIDER New York City, not because it is a frightful example, but because it is typical of conditions that exist to a greater or less degree in nearly all of our cities. Large sections of the East Side of Manhattan are covered by slums, which in themselves are a menace to their occupants as well as to the community. Certainly no one would say that any part of this area is devoted to its highest social use. Here is a great expanse of land crowded with people who should not live there. It is a site that is naturally one of the finest residential areas in the world, and it is here that the people should live who carry on the commercial activities of the city. Manhattan is not the place for an industrial or a manufacturing population. The land is potentially too valuable. It has a higher social use than is represented by the housing of manual workers. Consider the economic loss in hauling hundreds of thousands of office workers out of the city every night only to haul them back again every morning, when they might live in beautiful surroundings within walking distance of their work. If, 50 years ago, a Planning Authority had been set up to guide and direct the growth of the city and provide for the highest social use of the land, it would have spent most of the money that has been used for the building of subways, in removing the populations that should not live on Manhattan and for providing for those that should live there. The great office buildings which we find crowded together in two major groups, on narrow streets, cutting off light and air are merely the expressions of unrestrained private initiative dominated by greed for speculative gain.



Museum of the City of New York

"A Dream of the Babylonians." Pencil drawing (copyright) by W. K. Oltar-Jevsky

In time these buildings will be removed. They were not built for permanency. It is assumed that they will become outmoded and obsolescent — that centers of business activities will shift and that new developments will make future buildings more desirable and better adapted to commercial use. It is likely that there will be a further concentration of commercial populations, where entire industries or groups of industries will be gathered together, perhaps under one roof. Instead of a single building occupying a single block and becoming a tower in its upper stories, which is, at once, a difficult and uneconomical form of building, it is likely that buildings will occupy several blocks as a single site and that they will rise much higher than they do now.

It is probable that the masonry wall will disappear from the steel frame, as it should have done long ago. The masonry wall performs no function except to keep out the weather and this it does but indifferently well. It will take no great stretch of the imagination or exceptional inventive genius to devise a panel that can be shop-fabricated and set when the steel is set. With the broad bases that such buildings will have and with the decrease of dead load due to a lighter form of wall and floor construction these buildings may rise much higher and they may be built faster and at much less cost. But they should never be built on existing building lines. Here again the planning authority should take control. It might elect that Broadway should, at some future time, be 400 feet wide, a broad boulevard, running the length of the city, with parks and trees to provide for the free movement of pedestrian and wheeled traffic, and it might ordain that these great buildings shall be located at intervals of proper size on either side of this boulevard. The street floor and basement and the first or second stories might be devoted to stores, where everything could be found that the population of the building might desire. Each building might be a small city in itself. The next group of stories, where light and air would be least available, could be devoted to parking space, for autogiros descending from the top as well as for automobiles ascending from below. It is not

beyond the realm of possibility that the present subways would serve as excellent express highways for those who preferred to live in the suburbs.

The Planning Authority, seeking the optimum social value of the land might then decide to zone the rest of the city into bands. Along the East River there might be an apartment zone of the highest class, such as are now to be found from 52d to 60th Streets. Inside of these, there could be high class but less pretentious apartments, and inside of these still less elaborate apartments and then inside of these areas of multiple housing for those in the appropriate income groups.

In 50 years, the retail center of Manhattan has moved four times. In 1885 it was at 14th Street and around Union Square. In 1900 it was at 23rd Street and around Madison Square. A few years later it had moved up Fifth Avenue, and lingered awhile at 34th Street. Then it started on its way again, and is now above 42nd Street. Wherever it stayed for any length of time, property value arose to high levels because of concentration of people. When it moved, it left behind a blighted area, and values dropped because sufficient people no longer went there.

Each one of these migrations involved great change in values, profitable to the speculator but hard on the investor. The unearned increment accruing to the speculator is an economic burden on the community because of the increase in rent, and the blighted areas are another economic loss to the community because of deflated values and reduction of taxes. These movements in population, and the losses that they incur, manipulated and developed largely by private initiative could be greatly minimized by the Planning Authority by zoning the land for its proper social use and planning the development of transportation in reference to that use.

There is an area on the East Side, bounded by Chrystie, Forsyth, Canal and East Houston Streets, which was, until a few years ago, one of the worst of slum districts. So bad was it, that the city condemned the land, demolished the (Continued on page 30)

THE TREND OF AFFAIRS

IN THIS SECTION: *Pre-Fabricated Houses at the Century of Progress (15)*; *President Compton Heads Science Advisory Board (15)*; *Automobiles of Tomorrow (17)*; *Lead's Artful Aid (18)*; *An Inland Waterway from Eoston to North Carolina (18)*; *Utilizing Terrestrial Heat for Power (19)*

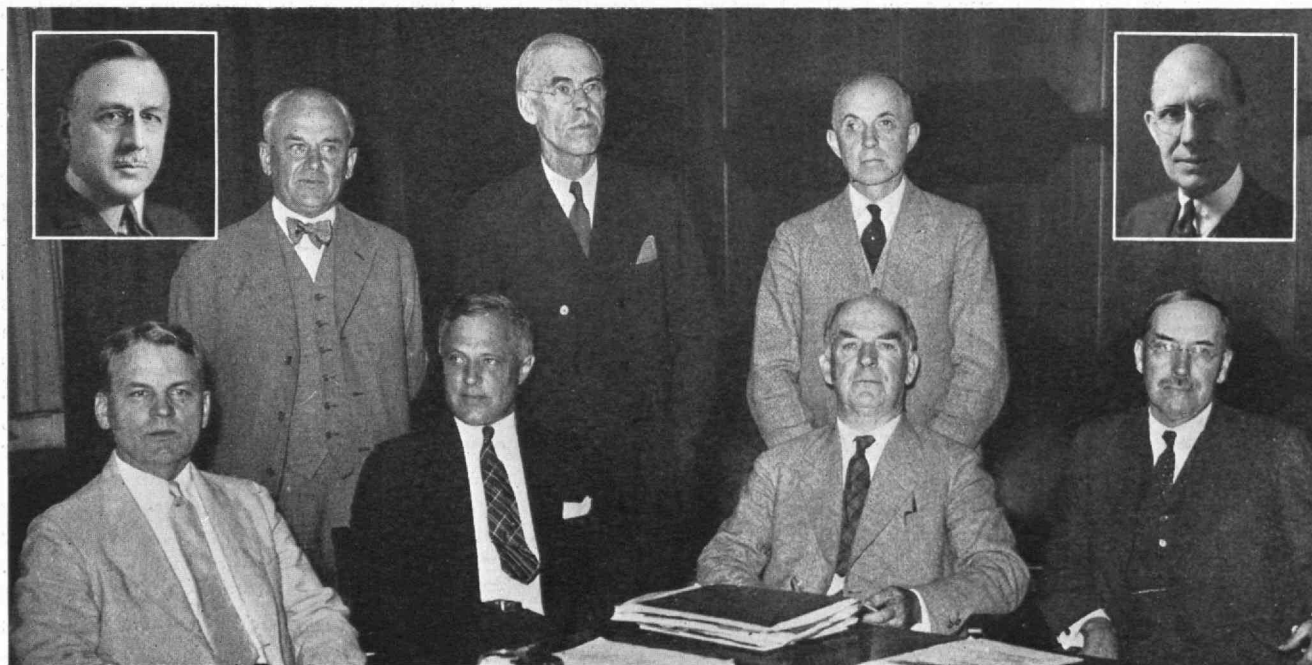
Housing at the Fair

OPPONENTS of the pre-fabricated house point with pleased alarm to the housing exhibit at the Century of Progress. "This," they say, "was to have been the great display of the factory-built house. Ha Ha." It is timely to analyze the extent to which these chop-licking smiles are justified.

Thirteen buildings called houses are exhibited. Nine of these show no construction principle of any possible significance to future factory production. Nor are they intended to. The glass house, the houses of lumber and of brick, the house of cypress, the Masonite house are advertisements of the uses of specific materials, making no pretensions in the field of construction. The Florida house with its cocktail bar and aquaria for tropical fish affords the populace an insight into the somewhat Hollywoodish elegancies of expensive Southern beach life. "House of Today" is a splendid demonstration of

the capabilities of a well-known New York interior decorator. "Design for Living," somewhat doubtful in construction, is a perfectly legitimate architects' advertisement. "House of Tomorrow," embodying the superficial aspects of Fuller's "Dymaxion" house, achieves its purpose, that of being a successful concession.

Two of the other four may be briefly dismissed. The Rostone house uses a new and handsome synthetic stone with a steel frame supplied by a second manufacturer. Neither the method of construction nor the materials used offer prospect of large-scale factory production nor of the economy necessary in the mass market. The Stran-Steel house, covered with a form of porcelain enamel was built to show a new steel frame with a nailing feature. Even its sponsors do not claim that this construction will enter the low-priced field. Indeed the advertising suggests the use of the frame in traditional building, and stresses not economy but better construction.



Keystone

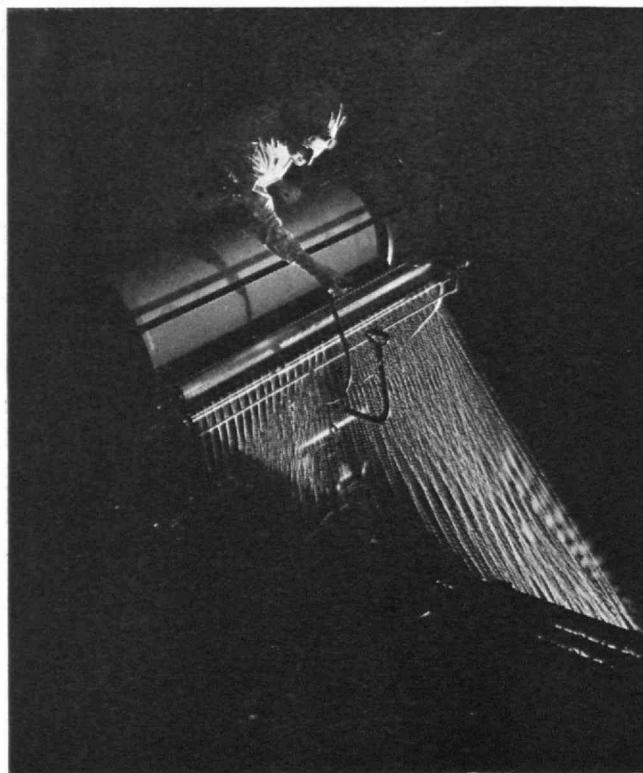
Science Advisory Board appointed by President Roosevelt to aid and advise the government in its technical and scientific work. Seated, left to right: Isaiah Bowman, Chairman, National Research Council, and Director, American Geographical Society; K. T. Compton, Chairman, President of M. I. T. and Chairman, Governing Board, American Institute of Physics; W. W. Campbell, President, National Academy of Sciences, and Director, Lick Observatory; and J. C. Merriam, President, Carnegie Institution of Washington. Standing, left to right: R. A. Millikan, Chairman, Executive Council, Caltech; C. K. Leith, President, Geological Society of America; and F. B. Jewett, '03, Vice-President, American Tel. & Tel. Co., President, Bell Tel. Laboratories, and recently retired Term Member on Technology's Corporation. Left Insert: Gano Dunn, President, J. G. White Eng. Corp. Right Insert: C. F. Kettering, Vice-President, and Director Research Laboratory, of General Motors Corporation.

The three members of the Science Advisory Board who are on the Visiting Committee of the Bureau of Standards (Messrs. Compton, Dunn, and Kettering) have also been appointed to the Business Advisory and Planning Council of the Department of Commerce. (Gerard Swope, '95, is Chairman of this Council and Dr. Compton is on the Executive Committee). In this way there is provided an interlocking of these groups which have advisory assignments

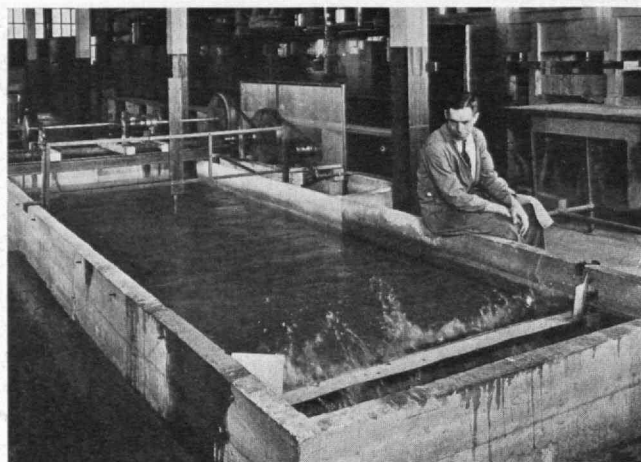
The Ferro-Enamel house displays defects which, in view of the difficulties surrounding all construction at the Fair, it would be unjust to criticize. So far as can be learned its builder proposes to enter the house field with steel plates but preferably not through its own efforts. The house is a suggestion and not a completed product. It is a long way from a representation of the case for pre-fabrication.

With the smallest and simplest house on the grounds, General Houses some way manages to convey the impression of the greatest sincerity. The house is compact, livable, and probably inexpensive. It is naturally not perfect. But it is distressing to find great deviation from the widely published construction details and still more so to note that all these deviations seem to lead further away from complete pre-fabrication. This corporation is also displaying a house for sale in Elmhurst, a suburb of Chicago. Evidences of site manufacture are all too apparent. The fact is that General Houses is not necessarily a contender for factory manufacture of houses.

On the contrary, this highly competent and aggressive organization reasonably hopes to make a profit out of providing homes of standard quality through a system of national dealer-outlets. If pre-fabrication should happen to fit this program, General Houses will employ it, but will probably not engage in exhaustive and costly research to prove any thesis. The corporation is quite prepared to go along building houses in the old ways with necessary modifications and to adopt pre-fabrication only when and if it proves successful. At present the major economies shown are those of simplified plan and finish and as such can, and doubtless will, be copied by competitors.



Winder of Warp. A super-speed warper in a textile mill, a recent American development. A new English waterproof textile fabric, "Grenfell Waterproof" is now being sold in this country



Sea waves reproduced in miniature in M. I. T. River Hydraulic Laboratory. Professor K. C. Reynolds, '25, shown above, built the wave-maker to study ways of designing sea-walls to prevent coastal destruction by storm waves

Thus no exhibitor is fundamentally interested in pre-fabrication. No house is a demonstration of this method. The proponents of pre-fabrication have never claimed that the Century of Progress was to provide its first grand showing; the opponents are very wrong to derive much gratification from the unquestionable failure of pre-fabrication to make any case; that case has not yet been called to the bar. It is unsafe to guess about the verdict before the evidence has even been collected, much less presented.

If the demonstration of the major issue is a disappointment, the student of housing progress finds much of interest in the side shows. The International Style swept the housing exhibit by storm and although the designers had apparently assimilated the principles of this style but poorly, none the less there are actual houses of semi-modern design on display. The elimination of the dining-room is general. Terrace living is equally prominent and in the Ferro-Enamel house is practically combined with a sheltering penthouse. Trim is stripped to a remarkable degree. The by-no-means sophisticated visiting public is not in the least perturbed by these manifestations. Unquestionably the houses, bad as they are in toto, will affect American domestic architecture profitably in the next few years.

There were not many new gadgets. Air-conditioning makes a dramatic stand, but is somewhat unconvincing because the little question of cost is treated *sotto voce*. The interior decorators had a holiday and show a great deal of rather out-of-date modern furniture. Metals finally have come into their own. Copper is used profusely and successfully on walls. Brushed aluminum mantels are most effective. In fact, aluminum is used everywhere and almost always successfully.

The most successful and suggestive housing exhibit is way down in the Transportation Building. There the Pullman Company shows two new aluminum cars. Many problems remain to be solved in connection with metals in houses, but the Pullman Company has solved the question of appearance. When architects can learn to use bare metals as beautifully as the Pullman decorators now know how to, one of the major bars to

pre-fabrication of metal house parts will be removed. The pre-fabricated home will never come to pass unless it is aesthetically satisfactory, and these Pullman cars are far more than that.

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It is estimated that the United States chemical industries employed 249,000 persons in 1914 and 465,200 in 1929; that before the War these industries employed a capital totaling less than two billion dollars contrasted with over ten billion dollars in 1930.

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Toward Better Automobiles

HOW will the automobile of tomorrow differ from that of today? The answer may be implied by listing the faults of present-day American cars. Here are some of these shortcomings, with suggestions for overcoming them, as enumerated by engineers, domestic and foreign, at the International Automotive Engineering Congress last month in Chicago:

COMPLICATED OPERATION. As a contributor to The Review pointed out last January, the driver must go through a rigid sequence of at least 14 separate motions with his hands and feet to get a car up to full speed. **Possible Solutions.** — Automatic variable speed transmission, making it unnecessary to shift gears; a "fluid flywheel" coupled with an epicyclic gear box, whereby gears are changed by pressing a pedal. "Within five years we will see motor cars without gear shifts that will be able to climb our steepest highways in high gear."



Italian liner, Rex, blue ribbon holder of the Atlantic, in full dress. Records held: fastest and longest 24-hour run (736 miles, or 29.61 knots per hour); fastest crossing of the Atlantic (from Gibraltar to Ambrose Light, four days, 13 hrs., 58 min., averaging 28.92 knots)

EXCESS WEIGHT. Contemporary automobiles weighing several hundred pounds per passenger are expensive to run, rough riding, hard on tires, fatiguing to drive. **Remedies.** — Engine super-charging, resulting in more power from smaller engines (an English engineer holds that engine performance could thus be benefited 50% to 60%); use of lighter alloys, particularly in cylinder heads, pistons, connecting rods, and axles; better body design to give more room for a given chassis; air-cooled engines (here the airplane will make its contributions. It already has suggested the use of air-wheel tires and independent wheel suspension); inducing the public to accept smaller cars. "The American car is a triumph of effectiveness over efficiency"; "... the lighter a car is, the easier it can be made to ride."

STEERING WHEEL VIBRATION. "Tramping" and "shimmying" of front wheels occur with present axle designs. **Remedies.** — "Complete elimination of both of these is hardly possible without the individual springing of every wheel and without using a definite cross axle"; three wheels instead of four (see page 8).

POOR BODY DESIGN. Present bodies obstruct vision, reduce efficiency by air resistance, induce fatigue through poor ventilation, do not efficiently utilize the available room, have not been scientifically studied for proper seat contours. **Remedies.** — Since long hoods and wide rear corner posts make vision at intersections and to the rear difficult, they should be made smaller. Streamlining is already achieved but not accepted. Many contend that it demands that the engine be placed in the rear of the car. The airplane again holds suggestions for the automobile designer in the elimination of carbon monoxide dangers. More attention should be given to removing carbon monoxide by proper exhaust design or by preventing its entrance into the passenger compartment.



[When the Earth "Pours a Heat." Davis Lake lava flow in Oregon]

Automobile air conditioners will doubtless be available (one has already been demonstrated). In addition to acting as a car heater and cooler, the conditioner, by purifying the air, will tend to reduce car sickness due to gasoline and exhaust vapors. It will quickly dissipate smoke in the car. To add to comfort, scientific investigation will indicate new angles and contours for seats. They will be intelligently designed to prevent body fatigue.

To the above list might be added unreliable ignition (a recent survey by the Automobile Club of New York indicated that ignition troubles account for 31% of the emergency calls of its members, tires 23.7%, batteries 10.6%). Other straws in the wind: The number of Diesel-engined vehicles in use in England jumped from 328 at the beginning of 1932 to nearly 2,000 by March, 1933; promising experiments have been conducted in England on the use of coal gas as a fuel for trucks.

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Platinum wire used as fuses in delicate electrical instruments are 30 times finer than a human hair. More than 13,000 of these wires could be laid side by side on a one-inch space. Although platinum is 16,800 times heavier than air, these gossamer-like wire fuses float like a spider web.

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New Uses for Lead

IN THE constant search for new alloys, metallurgists are not overlooking the possibilities of extending the usefulness of metallic lead. Although limited by its mechanical weakness, the metal has held a place of great importance in the progress of civilization from the earliest times. Biblical history mentions its use and the early Romans fashioned from it pipes for their water supply system. The alchemists of old gave it a symbol, the sign of Saturn, and the metal was considered of great importance in their transmutation experiments.

Two English research workers who have been studying lead alloys recently announced that the addition of as little as 0.06% of tellurium not only greatly improves the mechanical characteristics of lead, but increases its resistance to corrosion. Should further study prove this new alloy to be of wide industrial value, tellurium, which up to the present has had little commercial significance, should

increase in importance. Classed as a member of the sulphur group, tellurium has metallic properties, and solder and other lead alloys are said by these investigators to be greatly improved by the addition of small quantities of the substance.

H. K. Herschman and J. L. Basil in a recent issue of the Bureau of Standards *Journal of Research* reported the development of a leaded bronze bearing metal which contains up to 45% lead in which the tin or antimony customarily added to disperse the lead evenly is replaced by 0.4% sulphur and 1.5% silicon-zirconium alloy. The wear resistance of this new alloy is said to be equal or superior to those now available.

The world consumption of lead is approximately 1,500,000 tons annually, about half of this amount being used in the United States. The most important uses for metallic lead are as a sheathing for cables and in the manufacture of storage battery plates. It still holds an important place in the manufacture of pipe for domestic plumbing and industrial uses, and its resistance to corrosion makes the metal of great value as a lining for vessels and equipment in the chemical industries. In addition to its value in the pursuits of peace, lead has played a sinister rôle as an agent of death and destruction in warfare since firearms were invented.

During the present economic disturbance, lead has fared well in comparison with many industrial commodities. As for its future, the completion of the huge Chinkent lead smelter in Russia promises an annual production of 60,000 tons from that source; the lead industry in England is showing signs of renewed activity with the construction in Sheffield of a new sheet lead plant; midsummer sales of lead in this country increased appreciably.

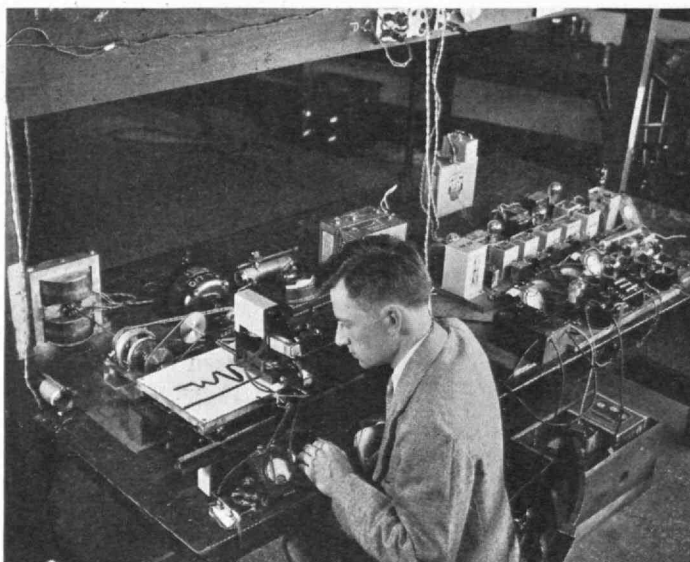
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Piers for the new Mississippi River Bridge at New Orleans are expected to reach a depth of 185 feet, a world's record. Next deepest (176.5 feet below low water) will be the piers of the highway bridge across the Atchafalaya River at Morgan City. Third deepest, 162.5 feet for the piers of a bridge at Hawkbury, Australia.

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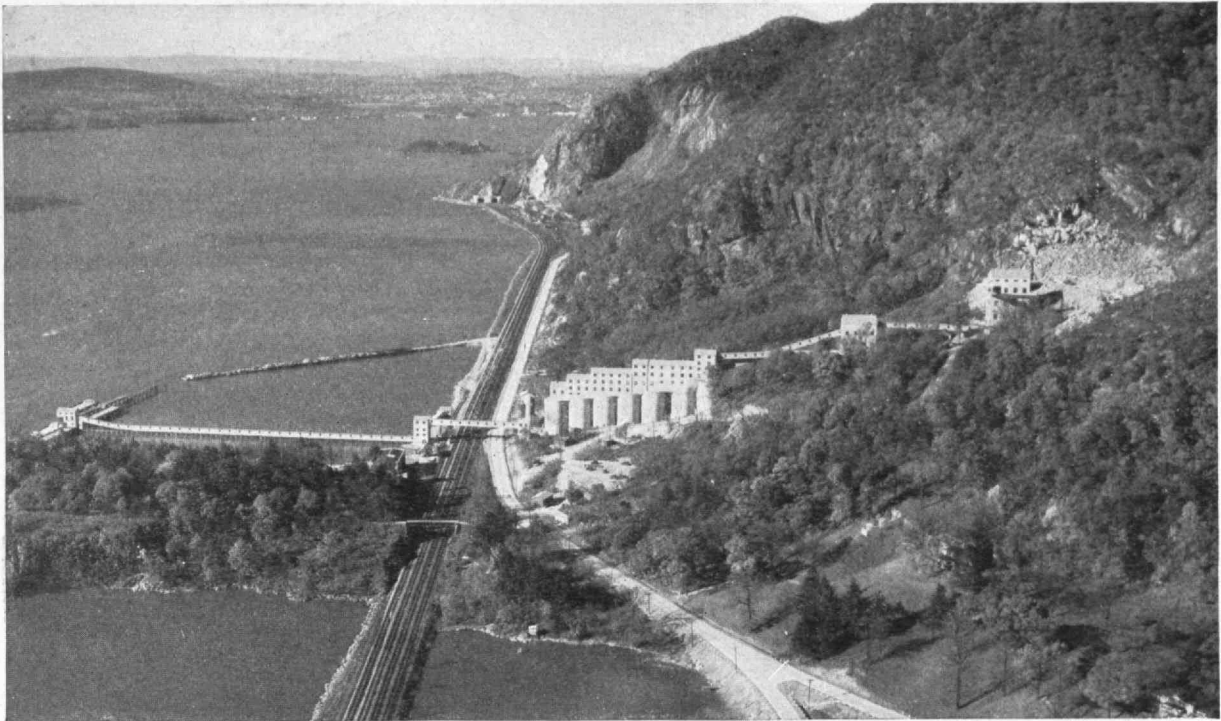
Jersey Ditch

INCLUDED in the recommendations put forward for consideration by the Public Works Administration is the construction of a ship canal across New Jersey to permit ocean-going tonnage to pass from New York harbor to Philadelphia by way



M. I. T. Photo

Electrical hound. New servo-mechanism (described in July Review) unusually fast and active. A machine for controlling other machines, it is here used by Professor H. L. Hazen, '24, as a part of a calculating machine for solving complex mathematical problems. Like a dog with its nose to the trail, it inexorably follows the graph



Traylor Engineering and Manufacturing Co.

World's largest hard rock crushing plant on the side of Mt. Taurus, Cold Spring, N. Y. (Hudson River Stone Corporation). Capacity: 7,500 tons daily

of the Delaware River. It would be a waterway at least 25 feet in depth with a width of 250 feet, and the estimated cost is figured at \$173,000,000, or something less than half that of the Panama Canal, exclusive of the latter's provisions for military defense. Incidentally, of course, digging the Jersey ditch would provide employment for thousands of men.

The plan, however, has a further compelling interest in that it would form the final link in an intracoastal waterway channel from Boston to Beaufort, N. C. With \$4,600,000 already authorized for improvements on the Cape Cod Canal, it is reasonable to expect that demands for a means of avoiding the dangerous ocean passage down the Jersey Coast to Cape May will mount and this would be accomplished by the proposed canal.

While \$173,000,000 is a considerable sum in itself, up to August 31 last there had been allocated from the public works funds some \$140,000,000 for work on rivers, harbors, and flood control. Hence it would not be surprising if the Jersey project was approved.

Moreover, the provision of a means by which smaller vessels might travel from Maine to the Gulf of Mexico with as little exposure to the open sea as possible has long been one of a triumvirate of cherished governmental waterway ideas. The others — Panama and the Mississippi — have perhaps come more often to public notice, but that along the Atlantic was much earlier in its inception. George Washington, himself, is said to have once made a survey for a canal through the Dismal Swamp. Later, in 1837, Congress ordered the first of several surveys of this section but nothing came of it for many years. Finally, in 1907, work was begun on a stretch extending 291 miles from Norfolk, Va., to the Cape Fear River and this was completed about two years ago.

Practically all Federal inland waterway projects have faced opposition from existing transportation facilities and the Jersey canal will doubtless prove no exception. Often their completion has served but to prolong debate, for experience has indicated frequently that the actual traffic making use of the completed facility bears little relation to that elaborated in the estimates. European experience with canals and canalized rivers apparently has been more happy if one may judge from the commotion provoked by the French barge-men's strike of last summer. In France alone there are 220 ports on rivers and 320 on canals, and the commerce of the port of Paris on the Seine is second only to that of Marseilles. By treaty, inland waterborne traffic in France, Germany, and Belgium proceeds over a 17,000-mile hookup and work is now reported to be progressing on the Canal d'Alsace which eventually will join the Rhine and Rhone.

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At the National Physical Laboratory at Teddington, England, a high-pressure wind tunnel has been built. It is 50 feet long, has an internal diameter of 17 feet, and is about two-and-a-half inches thick. In this 350-ton steel drum a 60-mile wind can be created in air that is compressed at 350 pounds pressure.

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Prospecting for Steam

ITALY'S success in utilizing the natural steam generated in the volcanic regions beneath her feet for the production of electrical energy, may point the way to further use of this source of energy. In an article in



For those who carry on graduate work at M.I.T., the Forris Jewett Moore Room of the George Eastman Research Laboratories is a meeting place conducive to the most happy and valuable relationship between members of the staff and students. This great, quiet room with its beamed ceilings and background of paneled oak walls, comfortable lounge chairs, and deep sofas, was provided

by Mrs. Forris Jewett Moore in memory of her late husband, who, as Professor of Chemistry at the Institute from 1902 to 1925, became deeply interested in the human relationships of scientific work. In this room are held frequent seminars and colloquia between members of the staff of the Institute and Harvard University, departmental conferences, and lectures by distinguished scientists

The Review last March on "Our Supply of Energy," Dr. Arthur B. Lamb drew attention to the fact that terrestrial heat however inaccessible is present in huge amounts near the earth's surface.

The best possibilities for utilization of natural superheated steam lie in certain volcanic regions, where it is more likely to be close to the earth's surface. It is in such a region at Larderello in the Val de Cecina in Tuscany that Prince Ginori Conti has developed power plants, the turbines of which are driven by steam issuing from orifices in the volcanic crust. The first well was harnessed in 1931; a year later the steam of a second was put to work. Recently a new well or steam spring was opened and is to be utilized in further development of power.

With the added steam of the latest well, the group of three are expected to produce at least 20,000 kilowatt hours of electrical energy annually. Steam from the new 650-foot well, flowing with a pressure of about four

atmospheres at a temperature of 190° Centigrade, hurls its white plume several hundred feet into the air.

The significance of this small region of approximately 32 square miles as a source of power is indicated by the estimate that beneath its surface lies a reserve of steam which would produce 320,000,000 kilowatt hours of energy annually, equivalent in terms of solid fuel to 200,000 tons of Welsh coal. Italy's natural steam power plants already have an annual output of 60,000,000 kilowatt hours.

In a recent lecture before the Royal Society of Arts in England, Prince Conti described methods of prospecting for steam, the technique of drilling, and finally of turning volcanic steam into paths of useful work.

The possibilities for utilizing natural steam in this country are indicated in the steam wells of Sonoma County, California, a region in which the earth's heat is comparatively close to the surface.

THE INSTITUTE GAZETTE

Alumni Placement

AS ANNOUNCED on page 40, Technology's Personnel Office has assisted more alumni in securing positions during the past three months than in any other period of similar length. By early summer the staffs of most industrial organizations had been reduced as far as possible, and the improvements in business conditions since then have created a demand for men with technical and executive experience. In addition, the Federal Emergency Public Works Program has offered the first opportunity in several years to place some of the more experienced alumni in positions where their experience could be used to advantage.

The policy of the Personnel Office is to locate as many of these openings as possible and to select and recommend for each the two or three best qualified men available. In spite of the long list of unemployed alumni, it has been impossible to find candidates with the proper experience for some of the best openings.

The coöperation of all former students is needed to increase the value of the Personnel Office to the alumni as well as to industry. Any Technology alumnus desiring a new connection should send in a complete record of his qualifications so that he may be considered for such

openings as his experience justifies. Registration with the Personnel Office will increase the individual's chances of getting located or relocated and help the Institute in its task of reducing the number of unemployed alumni.

Registration Preview

MARKED effects which the depression has had on professional study are reflected in the following forecast of the Institute's enrollment for 1933-1934, prepared by Registrar Joseph C. MacKinnon, '13. The left column shows actual attendance on the third day of the fall term in 1932, the right column an estimate, as of September 18, of the enrollment on the third day of the current term.

	Sept. 28, 1932	Sept. 27, 1933 Estimate
First year	564	475
Second year	523	425
Third year	606	475
Fourth year	580	550
Graduate year (including Fifth year, Course IV)	535	475
Total	2,808	2,400



Technology's exhibit at the Century of Progress. The exhibit also served as a registry and meeting place for Institute alumni

New Head of Mechanical Engineering

PRESIDENT COMPTON announced in August that Dr. Jerome Clarke Hunsaker, '12, Vice-President of the Goodyear-Zeppelin Corporation, Term Member of the Institute's Corporation, and internationally distinguished for his contributions to aeronautical engineering, had accepted appointment as Head of the Department of Mechanical Engineering. Succeeding Dr. Edward F. Miller, '86, whose death was reported in the July issue, Dr. Hunsaker assumed his new duties last month.

The founder in 1914 of the Institute's pioneer course in aeronautical engineering, Dr. Hunsaker is widely known in the field of aerodynamics and aircraft design. He was in charge, during the War, of the Navy's aircraft program and designed the *NC* flying boats, one of which, the *NC-4*, made the first trans-Atlantic flight in the summer of 1919. He also designed the first American anti-submarine patrol airships and the first Zeppelin type airship, the *Shenandoah*, to be built in this country. He is responsible for the present airway system of wire and radio weather service used by commercial aviation, and more recently has assisted in the construction of the airships *Akron* and *Macon*. This year he was awarded the Daniel Guggenheim Medal.



Pach Bros.

Dr. Jerome C. Hunsaker, '12, new Head of the Department of Mechanical Engineering. See adjacent account

As Head of the Department of Mechanical Engineering, Dr. Hunsaker will also have charge of instruction and research in aeronautical engineering and meteorology. Professor Charles F. Taylor, who has been in charge of the Course in Aeronautical Engineering, some time ago requested that he be relieved of his administrative responsibilities so that he might give undivided attention to internal combustion engine research. Under the new plan he will be in charge of the Institute's automotive engineering laboratories and will have unrestricted opportunity to carry forward important investigations in a field in which he is nationally recognized.

Dr. Hunsaker was born in 1886, and received his early education in the public schools of Detroit and Saginaw, Mich. He was graduated from the United States Naval Academy in 1908, and after a year of sea duty on the cruiser, *California*, he was selected for the Corps of Naval Constructors and sent by the Secretary of the Navy to carry on advanced studies at Technology. In 1912 he was awarded the degree of master of science, and in 1916 his thesis on the dynamical stability of airplanes won for him the degree of doctor of science.

It was while studying at Technology under Professor Cecil H. Peabody that Dr. Hunsaker's early interest in flying found new stimulation. His earliest aerodynamic experiments with a "sailing wagon" on the streets of Detroit spread panic among horses. As a result, this youthful research was promptly terminated by the police and irate drivers.

When Dr. Hunsaker began his advanced studies at Technology, airplane design as an engineering art did not exist. The scientific foundation had yet to be laid, for while the airplane was an American invention, its engineering development in 1912 was going forward only in Europe. Dr. Hunsaker, aided by his wife, translated and published the pioneer work of Eiffel on wind-tunnel testing of airplane models. This led to an invitation by Eiffel to visit his laboratory in Paris.

Dr. Richard C. Maclaurin, then President of Technology, appreciating the increasing importance of aeronautics, requested the Navy Department to loan Hunsaker to the Institute to establish research and teaching facilities in aeronautical engineering. It was arranged by President Maclaurin to have his friend, Sir Richard Glazebrook, director of the National Physical Laboratory in England, invite Dr. Hunsaker to join the staff of the wind tunnel there. The summer of 1913 was, therefore, spent in Teddington with an enthusiastic British group of aerodynamic pioneers.

In the autumn of 1913, Hunsaker went to Paris and joined Eiffel, then engaged in wind tunnel testing of complete models of airplanes and model propellers. He assisted in this pioneer work to correlate airplane performance and propeller characteristics.

Before returning, Hunsaker visited Germany in company with Dr. A. F. Zahm, now director of the Aeronautical Division of the

Library of Congress. While military restrictions were already becoming evident, many scientific workers were anxious to discuss the problems of the new art. Zahm and Hunsaker, incidentally, made a cruise in a Zeppelin, and almost lost their welcome by displaying interest in its construction. Six years later, Hunsaker was to be required to undertake the building of the *Shenandoah* based on information from Zeppelins brought down in the War.

Returning from Europe at the beginning of 1914, Dr. Hunsaker was impressed by the relatively backward state of aeronautical engineering knowledge in America. At Technology, then in Boston, a wind tunnel duplicating the British tunnel was immediately undertaken with aerodynamical equipment supplied by Sir Richard Glazebrook. Thereafter, and for the next three years, Hunsaker employed this M. I. T. tunnel for fundamental research in aircraft design. This wind tunnel testing and its results formed the basis for a graduate course in aeronautical engineering beginning in October, 1914, and continuing under his successors. Hunsaker's period in charge of this first American course in aeronautical engineering resulted in two noteworthy contributions to American aeronautical progress: first, scientific papers giving fundamental information to designers, and second, a group of American-trained aeronautical engineers who have played a leading part in later progress.

In 1916, after the Institute had awarded Dr. Hunsaker the degree of doctor of science, he was recalled to the Navy Department and placed in charge of the Aircraft Division of the Bureau of Construction and Repair by Chief Constructor David W. Taylor. Dr. Hunsaker's responsibility for the Aircraft Division developed into responsibility for all naval aircraft, airplanes, seaplanes, and airships, including design, construction, and procurement through the war period.

With the outbreak of the war, the need for aeronautical engineers in this Aircraft Division became acute. The few young naval officers trained at M. I. T. had to be supplemented by large numbers of engineers from civil life unfamiliar with either aeronautical or naval engineering. Again Hunsaker became a school master. That the intensive course was well absorbed is attested by the excellent record of this division. Shortly before the Armistice in 1918, shipment of flying boats to the naval patrol bases in France, England, and Ireland was stopped by Admiral Sims because they had been fully supplied up to their complements. The anti-submarine patrol bases on the American coast were also fully supplied both with flying boats and airships, and all training schools were in full operation. The procurement problem for many of the required types involved development of design, correction of defects in the first test model, research to develop special or substitute materials, standards of quality, special instruments and equipment, and in general, organized engineering under high pressure.

Dr. Hunsaker is credited with major responsibility for many important contributions to aeronautical development growing out of this war program, including the introduction of aluminum alloy of the "duralumin" type, the American naval-type flying boats and



Beresford

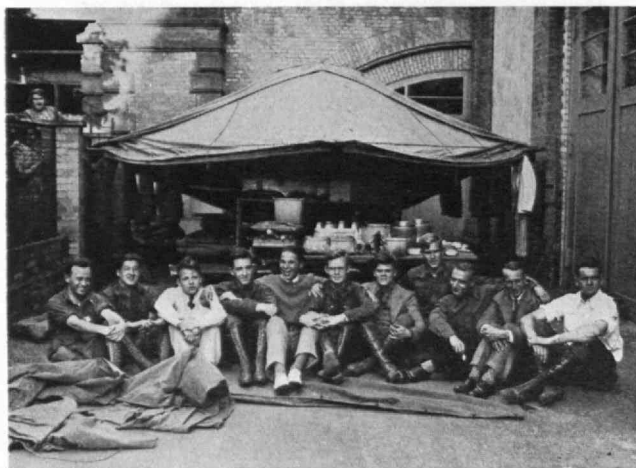
Sir Raymond Unwin, distinguished British architect, who, as a lecturer this year in the Department of Architecture, will contribute notably to the new Course in City Planning

seaplanes, single and twin engine patrol airships, Venturi air speed meter, trans-Atlantic flying boat with outrigger tail, the tank testing basis for design of flying boats, wind tunnel basis for design of airplanes, and gas-tight airship fabric in collaboration with Paul W. Litchfield, '96, President of the Goodyear Tire and Rubber Company. Dr. Hunsaker was awarded the Navy Cross for his engineering work during the war.

Shortly before the Armistice, Dr. Hunsaker was given the responsibility of carrying out two major engineering projects. The first was to design and build a Zeppelin, and the second to design and build a giant flying boat to cross the Atlantic to the War Zone under its own power. These projects were started as a precaution against the war lasting several years more. Both were continued to completion after the Armistice.

The Zeppelin project resulted in the completion of the airship *Shenandoah*, the first Zeppelin type airship to employ helium as the lifting gas. Her design was prepared under Dr. Hunsaker's direction and was based on plans made by French engineers from the captured German Zeppelin *L-49*. The *Shenandoah*, after two years' service, including a trip to the Pacific Coast, was wrecked in a storm. Because of helium, a large part of her crew was saved to give a detailed account of what happened. The conclusion that the ship might have avoided the storm if adequate meteorological reports had been available, led Dr. Hunsaker to take up the study of radio communications and meteorology, which he was later to apply practically.

In 1921 the Bureau of Aeronautics was organized and Dr. Hunsaker and the Aircraft Division of the Bureau



Wide World

Students of the Department of Business and Engineering Administration camping in Germany this summer during the course of a 4,700-mile industrial bus tour of Europe. The Thorne-Loomis Foundation (Alfred L. Loomis, banker, physicist, member of Technology's Corporation) provided the bus and Professor E. H. Schell, '12, Head of the Department, supervised the trip, assisted by John M. MacBrayne, Jr., '31 (shown on left)

of Construction and Repair transferred to it. The period 1921-1923 was marked by the development by the Design Division of the Bureau of Aeronautics of launching catapults, arresting gear for deck landings on aircraft carriers, the air-cooled radial engine, the winning by the Navy of the Schneider Cup and the world's speed record, the development of the light ship-board plane, and the torpedo plane.

Dr. Hunsaker's aeronautical inspiration was originally European, and his interest continued to keep him in touch with European workers. In 1918, he was temporarily attached to Admiral Sims' staff in London, and immediately after the Armistice accompanied the Armistice Commission as expert to the German naval bases to disarm German Zeppelins and airplanes pending their final disposition. In 1919, he made an investigation for the Navy Department of the airship art in England, France, and Italy as a member of a special commission. In 1920 he delivered the Wilbur Wright Memorial Lecture in London.

In 1923, Hunsaker was ordered to Europe for duty as Assistant Naval Attaché at London, Paris, Rome, and Berlin. He remained on this duty until 1926, in which year he resigned from the Navy to join Dr. Frank B. Jewett's ['03] research staff at the Bell Telephone Laboratories in New York. He was appointed assistant Vice-President and given charge of the development of

wire and radio communication services for commercial aviation.

The Air Commerce Act of 1926 vastly stimulated the air mail service and a network of national airways was being laid out. Safety and regularity of flight were found to depend on adequate weather and dispatching information. The lessons of the *Shenandoah* wreck were not forgotten. Hunsaker arranged with the Daniel Guggenheim Fund for the Advancement of Aeronautics and the Pacific Telephone and Telegraph Company to finance and operate a model meteorological service for the airway between San Francisco and Los Angeles as a demonstration of what could be done with existing facilities. Professor C. G. A. Rossby, now of Technology, acted as meteorological adviser in this experiment. In the meantime, there was installed on other airways "telephone typewriter" or ticker service.

The last and most important unit of this development program was a compact and accurate radio telephone transmitter and receiver for the airplane itself, installed so as to eliminate both ignition noise and acoustic noise. Today the combination of wire service, radio service, and meteorological service, substantially as conceived by Dr. Hunsaker, is standard for the airways.

In 1928 Dr. Hunsaker again became associated with Mr. Litchfield, pioneer builder of balloons and airships, who had undertaken to transfer the Zeppelin building art to this country and to construct two Zeppelins for the Navy, the *Akron* and the *Macon*. Mr. Litchfield formed the Goodyear-Zeppelin Corporation to do this work. Dr. Hunsaker and Dr. Karl Arnstein, chief engineer of the German Zeppelin Company, were made vice-presidents.

Dr. Hunsaker has been recently concerned with the application of such airships in commercial passenger and mail service, conducting, with Arnstein as consultant, extensive research in ocean weather, possible schedules, improvements to increase safety and economy, mechanical handling and terminals, training and operating methods, and in general questions affecting the economic merit and technical practicability of trans-Atlantic and trans-Pacific airship services. The results of these studies were presented at hearings before the appropriate committees of the last Congress.

Dr. Hunsaker has been concerned at times with administration, but has been essentially interested in research, interspersed with teaching. His work has always been with an organization in which, as leader, he has obtained results through his staff or his students. It is fitting, therefore, that following completion of the *Akron* and *Macon*, he is to return to Technology.



Members of the Class of 1883 who celebrated the Class's Fiftieth Anniversary last June by a reunion, a luncheon at President Compton's house, and by participating in the graduation exercises. Left to right: John Eppendorff, Horace Gale, George Bryant, David Wesson, Harvey Chase, Harvey Mansfield, George Underwood, Julien Vose, Edward Stevens



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Western Electric

LEADERS IN SOUND TRANSMISSION APPARATUS

SHALL I TRADE-IN MY CAR?

(Continued from page 10)

If the Item 10 value is larger than the Item 9 value, then it is wise and economically sound to continue the use of the car during the additional period proposed in Item 6, and it is more economical to do so the greater the difference between the two values.

If Item 9 is larger than Item 10, then it is unsound economy to continue the use of the car for the period as proposed in Item 6.

The first case worked out on the questionnaire shows conclusively that the car should be used for the additional period of two years, as proposed in Item 6. The second case shows that an immediate turn-in is preferable to the uneconomical procedure of using the car for an additional one-year period, as proposed in Item 6. Both these cases constituted real problems which were brought to the author's attention and they probably parallel thousands of other cases where car owners are in a quandary as to just what action to take with regard to their car. As has been stated before, it is wise to assume various additional periods of time for continued usage. It is further suggested that for these additional periods estimated car costs be made sufficiently large to cover every and all possible expense during these additional periods. Occasionally Items 9 and 10 are practically the same value and there arises the question of what is the best course to adopt. Judging on the basis of economy, an immediate turn-in would seem to be the best move to make.

Formal Derivation

For the benefit of those who are mathematically interested, the derivation of the basis on which the above method is founded is briefly outlined below.

ASSUMPTIONS

1. The car owner intends to own and operate a car over a period of time; i.e., ownership and use of some car will be a continuous performance.
2. The car history will approximate the life experience of the average automobile.
3. The history of subsequent cars to the present one will be practically identical with the history of the present car now in use; i.e., any car used in the future will receive the same care, attention, as the present car and will be subjected to the same type of driving conditions, and so on.

LEGEND

For convenience of expression the following legend will be used. Let P = original cost of present car (gross purchase price).

V = turn-in value of the car at the present time (derived from chart or equal to the value quoted by a reliable car dealer).

E = total expenses directly attributable to car ownership exclusive of all constant recurring costs.

Such costs as repairs, tires, replacements, repainting, re-upholstering, overhauling charges, new parts, taxes, fire and theft insurance, and so on, or other costs entering into car maintenance (representing variable costs which are more or less dependent of the car age) are to be included under E .

Such constant costs as garaging, liability insurance, registration, interest charges on investment (simple interest), gas and oil,* or other periodically recurring constant costs, are to be excluded.

(Continued on page 28)

*This item may be correctly included under constant cost providing (1) the car is driven about the same mileage every year and (2) the yearly oil consumption remains approximately constant.

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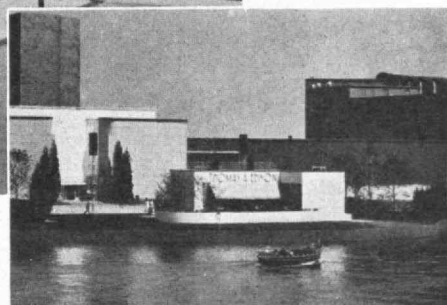


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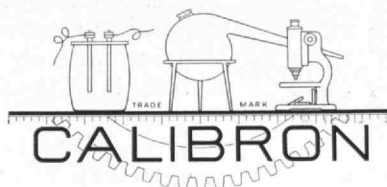


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NEW JERSEY

SHALL I TRADE-IN MY CAR?

(Continued from page 26)

Fire
Marine
Automobile
Air Craft Damage
Earthquake
Explosion
Rain
Rents
Riot and Civil Commotion
Smoke
Sprinkler Leakage
Tornado
Use and Occupancy
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William R. Hedge, '96, President

Henry R. Hedge, '96, Vice President

Note that such costs are fixed or vary but slightly as the car continues to be used. They may be regarded as fixed yearly charges.

Y = present age of the car, expressed in years and fractions of a year. This is equal to the years which have elapsed since the car's purchase, whether or not the car has been used during this period of time.

y = the additional period in years proposed for the continued use of the car and arbitrarily chosen to meet the questioning of the car owner.

v = the additional depreciation in the car value, due to the additional use of the car over the (y) extra period of years. This information is obtainable from the chart or from a reliable car salesman.

e = estimated expense of continuing car in use an additional number of (y) years exclusive of constant costs. (See discussion under E for definition of constant costs versus variable costs.)

The whole problem now resolves itself into the simple proposition that when and if the average car expense per year, including all costs, initial and operating, can be made a minimum, then the car is being run most economically.

Taking immediate stock of past expenditures on the present car owned, it can be seen that if the car were traded in directly, the car costs averaged over previous years of ownership would amount to

$$\frac{P - V + E}{Y} \quad (1)$$

or, in other words, the average total yearly cost of the car, exclusive of constant costs, is equal to the depreciation the car has suffered plus all necessary expenses incident to the car ownership (exempting constant costs), divided by the years of car ownership (age of car).

Following the same reasoning and providing a fairly close estimate can be made of what the car expenditures will amount to during a future period of use, say (y) years, a yearly average car cost can again be evaluated covering past period of car ownership, plus the additional period of (y) years. An equation representing such a yearly cost would be

$$\frac{P - V + v + E + e}{Y + y} \quad (2)$$

and this average yearly cost, based on a period of $Y + y$ years, would be greater or less than the yearly cost based on a period of time (Y years) to date. This would mean obviously that if (1) is larger than (2), then a trade-in at the present time is hardly warranted, since a lower average yearly cost is possible by using the car an additional period of years (y). By rearranging the expressions above by mathematical laws, this proposition can be put in the following form. At any time (when the car age is Y years) it will be economically wise and expedient to use the car for another period of (y) years if

$$e + v < \left(\frac{P - V + E}{Y} \right) y$$

This then gives the criterion by which to judge whether it is economically sound to turn in a car immediately or continue its use through an additional period of years (y). (Concluded on page 30)

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SHALL I TRADE-IN MY CAR?

(Concluded from page 28)

The right-hand member of the inequality is purposely grouped as shown, to include P, V, E, and Y in one parenthesis. These items are dependent on past data only and the numerical value of this grouping can be directly evaluated. Thus, in any specific case, the value

$\frac{(P-V+E)}{Y}$ is fixed and it is suggested that this value

be immediately calculated. If we let

$$F = \frac{(P-V+E)}{Y}$$

it is a simple matter to compare the sum of (e plus v) with Fy , for various periods of (y) years. In any specific case, whenever e plus v is smaller than Fy , continued usage of the car is indicated.

CITIES FIT TO LIVE IN

(Continued from page 14)

unsavory tenements, and widened the streets with the expectation of reselling the land for the building of modern multiple housing, ostensibly for the rehabilitation of the slum dweller. Unfortunately, whoever conceived the idea, either willfully or ignorantly, failed to think it through, with the consequence that the city now finds itself with some five million dollars of its money invested in land that it cannot sell.

The first mistake that the city made was in condemning the land and in taking it over at a value established by its use as a slum. This value varies on the East Side from 10 to 17 dollars a square foot whereas residential property in the most desirable neighborhoods in the suburbs of the city varies in value from 40 to 60 cents a square foot and in the neighborhood of Boston from 10 to 20 cents a square foot. These excessive values in slum areas are produced merely by crowding people onto the land through the lure of cheap rent. The accumulated rent that accrues from the crowding, when capitalized at 5%, represents a value out of all proportion to the value of the *(Continued on page 32)*

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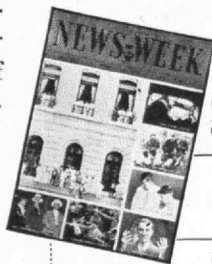
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CITIES FIT TO LIVE IN

(Continued from page 30)

land when devoted to its proper social use. When the city condemned the land the people were still on it, and in so doing condemned itself to pay the value that the land as a slum produced. When it removed the people it simultaneously removed the value of the land and it cannot restore that value except by restoring the people and recreating the slum.

The second mistake that the city made was in assuming that multiple housing would be built for the rehabilitation of the slum dwellers who had been removed from the land. Investigation would quickly show that no type of modern multiple housing, having the proper land coverage and the proper planning for light and air can be produced, on even low-priced land, that can be rented for less than 10 dollars per room per month and this is more than double the rent that any slum dweller can pay. To build multiple housing on land at the value at which the city condemned it, would require a rent far above that which any one, willing to live in that section of the city, would possibly pay. It therefore is apparent that the land at its present cost has no social use and that its real value is only such as will permit of the building upon it of multiple housing that can be rented at a price that people, who are willing to live in that neighborhood, can afford to pay. Instead of 10 to 17 dollars a foot the real value is nearer to 10 or 15 cents a foot, and the difference represents what the city has spent on a "noble experiment," which, like another that we know of will not work out.

Preliminary to the development of any plan is the problem of deflating the value of the land as it exists as an over-populated or slum area. It is not to be done by condemnation and the transfer of public money into the pockets of landlords. It is no answer to the slum problem to drive the people off of the land to make room for higher income groups only to create another slum somewhere else. The problem of the slum dweller is the hardest to solve because the income of the slum dweller is not sufficient to enable him to live in desirable housing on an economic basis. No kind of housing on any land anywhere will make the slum dweller economically independent. There seems to be no way of providing suitable housing for those most in need of it excepting by the aid of public money. This is the only solution that Europe has found and it is doubtful if any other can be found, simply and only because the income of this group is not sufficient to show a return on the investment that must be made for them. There is a gap that must be filled and if we admit that it must be filled, it is manifest that the gap should be as small as possible. To make this gap as small as possible, it is manifest also that such people must be housed on the least expensive land, instead of on (Continued on page 34)

WILLIAM P. BERKELEY

M. I. T. '27

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CITIES FIT TO LIVE IN

(Continued from page 32)

the most expensive land, as they are now. The Planning Authority would seek out and set aside adequate areas of low priced land, strategically situated in reference to centers of employment to be reached by low priced transportation.

THE Division of Land Valuation and Taxation should make an economic study of all land and determine its optimum social value as a basis for taxation. The optimum social value of land is neither its speculative value nor its exchange value, but a value to be determined by its highest and best social use. It is upon this value that taxes should be assessed.

There is an economic tax load that real property can bear just as there is an economic rent that an individual can bear. Real estate is now taxed out of all proportion to its economic tax load because it is the easiest and most convenient form of taxation. Real estate cannot be concealed or escape the assessor. One man may own a million dollars in real estate and another man may own a million dollars in bonds. The bonds may be concealed and pay no tax but the real estate cannot be concealed and must pay the tax for both. It is for this reason that many people prefer to invest in bonds rather than in real estate. The system is unfair, inequitable, and often is confiscatory. The economic tax load on real estate should be indicated by the optimum social value of the land and this should be established by the Planning Authority. Real estate would bear its economic burden of taxation and no more. Taxation of real estate should no longer be merely the art of spreading political extravagance and waste over real property in as thick a layer as the traffic will bear. Taxation should be based on real values and should conform to the income that the land can economically produce. The Planning Authority should make an analysis of the cost of government, determine the essential functions and services that government should perform and set up a value, per thousand of population at which these functions and services should be performed. Local conditions and circumstances in a particular city, town or community might impose costs in excess of these basic values, but it would be known that these costs were in excess of basic values and why. The normal tax load on real property would be apportioned to the basic cost of government, to the extent of its legitimate economic tax burden, and if the cost of government was in excess of the sum accruing from that tax, other forms of taxation should be found.

The Division of Regulation and Control of the Planning Authority should have complete control of all building within its jurisdiction. It should prepare a building code compiled by experts unhindered by politicians or the greedy interests of private initiative, appropriate and suitable for communities of different kinds. It should regulate ground coverage, provide for safety and health and set up rules for the proper and adequate use of all materials. It should encourage research and invention and provide the widest latitude for the introduction of new methods and new materials to

the end that there may be greater economy and greater efficiency in building. No architect, engineer nor builder should be allowed to build anything at all until he had received a license from the Authority certifying to his competency and any willful violation of the building law should be followed by withdrawal of the license upon complaint and proof by any citizen. No building should be put into use until it had been inspected by the Authority and a certificate of occupancy issued certifying that the structure in all respects complies with the law. This certificate should become part of the title of the property and should travel with the deed. Seven-tenths of all building is done by builders without the supervision of an architect or an engineer and a great proportion of it without even the restraints and regulations imposed by a building code.

In every part of the land are multitudes of wooden houses hiding their flimsy construction and shoddy workmanship under a gloss of paint and wall paper. No sooner are they built than they begin to depreciate. Repairs are as constant a drain on the income of the home owner as are the interest and taxes. Thousands of houses are destroyed by fire each year because no precautions are taken to eliminate the hazards that gerry construction creates. Millions of dollars are wasted in coal because of heat losses that could be easily curtailed. Our splendid forests are being rapidly deflated to be sawn up into the tooth-pick lumber with which these houses are built, mostly by so-called builders, who, as often as not are not even journeymen. They build by rule of thumb, without originality, following an antique trade tradition bequeathed to them by their predecessors from generation to generation. Sixteen inches on centers is to them the fundamental law handed down to them by the man who invented the four-foot wooden lath.

No one is less critical or less discriminating than the home buyer. If he is pleased with the setting of the house, or with the fireplace or the stairway or an electrical gadget in the kitchen, as likely as not he will buy it at the builder's price without ever a thought as to the substance and quality of the house. On this, the speculative builder trades. His incentive is to supply the least value for the greatest price. As often as not there are no restraints of any kind and furthermore he is often aided and abetted by the money-lending agencies who accept the builder upon the mere profession that he is a builder, in anticipation of transferring the loan to the more responsible home owner. And it is not unheard of that a more favorable loan has been made to utterly incompetent builders than to others who build a better house. And due to this system there is many a mortgage among the twenty billion outstanding that are not worth foreclosing.

Let the skeptical reader who still doubts the need of a Planning Authority walk through any of our cities and note where the people live. Let him observe the slums, the blighted areas, the darkened, narrow and congested streets; then let him go into the suburbs and note the rows and rows of monotonous and tiresome housing and as he goes away from there, let him count the filling stations, hot dog stands and road-side markets, where private initiative has transformed the people's wonder-

ful highways into mere soul-depressing lanes of traffic. Let him ask himself if private interest is not subordinate to public interest and whether it is not time for individual greed to give way to an ordered plan for the greater good of the greater number. If he still insists that a planning authority is but another step toward socialism, let him finally ask himself, what is practical socialism but government of the people, for the people and by the people — and let him remember that this is the kind of government that the Great Emancipator said should not perish from the earth.

FALLING APPLES

(Continued from page 8)

sound on some chemical reactions. One could justly claim that the means of doing this had been available for a long time, and that there was no cause for awaiting new developments in acoustics before using those already at hand. In the summer just past, it was reported that intense audible sound had caused the hydrolysis of sugar, cracked hydrocarbons, precipitated metallic hydroxides, oxidized dissolved substances, and done other surprising chemical tricks.

The use of *longitudinal* supersonic vibrations in a bare wire to carry sound around corners, or under water and out on the other side without passing into the water, is interesting to telephonic experts, and its development in the future has fascinating possibilities.

Supersonic waves have been used for the selective destruction of bacteria, leaving unharmed one species

while destroying another. Since some bacteria are very useful and others are harmful, many important applications of this discovery may be expected.

And while near the subject of bacterial selection, we may consider a new application of bacteriology to industrial chemistry. In the amylo process for the production of alcohol from grain, the malting operation may be omitted, and fermentation put in charge of a different bacillus, *Rhizopus delemar*, for example, which functions more satisfactorily than those ordinarily used. Aside from the saving in cost of malting (which is no inconsiderable part of the total cost), this accommodating organism produces more alcohol and less acid from a given weight of raw material, and it does so in the presence of less water, which saves in the cost of rectification.

The Chinese have used this bacillus since before the dawn of history in making a beverage of great strength and pleasing taste, though of course they did not isolate the germ, or know of its existence. The beverage may have played some part in stimulating Marco Polo's glowing accounts of the lovely people he met on the shores of the China Sea, and surely rice wine has contributed to the enjoyment of countless other guests of the aristocratic Chinese these many generations. The scientific use of the bacillus in the manufacture of industrial alcohol in America was not described until 1933.

Chemists have long known, even organic chemists have long known, that temperature and pressure exert marked effects upon chemical processes, and that catalysers change their velocities enormously. It is known that catalysers cause (Continued on page 36)

INFORMATION

THE TECHNOLOGY REVIEW BUREAU exists to supply authoritative information to anyone interested in details regarding the Massachusetts Institute of Technology. It serves as a clearing house for inquiry and aims to further the spread of exact information regarding entrance requirements, outline of courses, subjects of instruction and other information which may be of aid to the students considering undergraduate or graduate study at the Institute.

The Institute publishes a variety of bulletins, fully descriptive of individual courses, as well as a catalogue of general information essential to the entering student. The Technology Review Bureau will be glad to send, gratis and post free upon request, one or more copies of any publication listed below, or to forward any special inquiry to the proper authority.

Ask for the following circulars by their descriptive letters:

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C: For announcement of courses offered in Summer Session, ask for Bulletin C.

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FALLING APPLES

(Continued from page 35)

reactions to occur smoothly at reasonable rates which are practically impossible without them. For the information of those who are not chemists, it may be explained that a catalyser is a substance which by its mere presence selectively influences the velocity of a chemical change to an extent which is beyond belief, and by a mechanism which is past understanding. The trick, of course, is to select the right catalyser.

Of the thousands of applications of catalysers which have developed, one of the most surprising is the recent direct union of benzol and carbon monoxide to form benzaldehyde, which is not a standard procedure in most organic chemistry textbooks; but which goes nicely at the proper temperature and pressure, and in the presence of the right persuader. It is well known that the parallel formation of benzoic acid from benzol and carbon dioxide is an absurd idea, but some person not fully aware of the fact may accomplish this reaction with the help of the right catalyser before the present season is far advanced.

The origin of the chemical treatment of textile materials is shrouded in the same darkness which obscures that of most ancient arts. It may have had its inception in the discovery by some primitive man that his woolen mantle was more readily cleansed in water if it was first rubbed with wood ashes. One readily imagines this discovery to have followed an act of negligence on his part rather than a true scientific curiosity; a wish to get the

ashes out of the mantle because they irritated his skin, more than a desire for personal cleanliness. And when he discovered that a mixture of ashes and water was better as a cleanser for wool than either one alone, or than one followed by the other, he inaugurated research in textile chemistry. It is a pity that no record of his work survives, for he may even have considered the influence of temperature upon the effectiveness of the process. But that this use of potassium carbonate and water should have remained the standard one for wool scouring through untold ages up to the present time, with no basic change, is a serious reflection upon part of the textile industry.

For how many centuries after man built him a house to live in during the winter was he content to spend all autumn cutting wood enough to keep him warm on one side through the winter, before it occurred to him to use thermal insulation? The development of a well-warmed house certainly did not lack someone to point out its desirability, and he had time enough to think of it while the need was uncomfortably obvious. If half of the wood had been made into shavings to pack the walls of the house, and strips to batten the cracks, the remaining half would have kept him warmed on both sides all winter.

Yet practically all of the *industrial* development in heat insulating materials has come within the Twentieth Century. The use of sheet aluminum as a heat insulator is quite new and still comparatively rare, and was not only unknown but unthinkable ten years ago. Aluminum was supposed to be a (Concluded on page 38)

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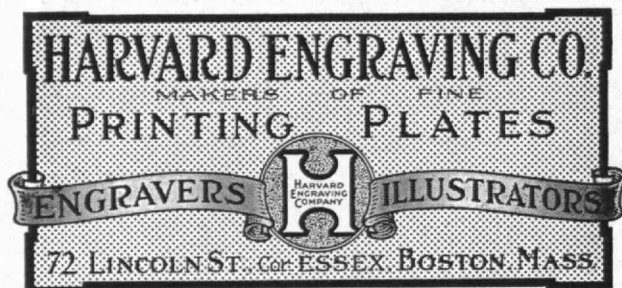
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FALLING APPLES

(Concluded from page 36)

conductor of heat, not an insulator. Heat conductivity has nothing to do with its insulating properties; the surface coefficient of emissivity controls the flow of heat from one surface to another. A single sheet of aluminum foil a thousandth of an inch thick will keep one warmer than a wool blanket if it is properly used.

Regnault knew something of this in 1840; and Joule polished the outside of his calorimeter to prevent heat loss in 1860. A description of parallel sheets of polished metal set close enough to restrict convection, in other words, a complete description of every underlying principle of modern metal-foil insulation, and a reduction of it to practice by the construction of such an insulator, is to be found in Péclet's book on heat, published about 1878.

From these illustrations, and the list might be considerably extended, it will be seen that the scientist who allows his days to pass in hunting for an opportunity on which to expend his talent, or pining for a problem worthy of his abilities, may be expected to walk disconsolately through his orchard in the autumn evening of a bountiful harvest in search of an apple. It would be of no avail if one fell on his head.

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M. I. T. NEWS BULLETIN

PREPARED BY JOHN J. ROWLANDS, DIRECTOR, INSTITUTE NEWS SERVICE

A Study of Storm Waves

The storm waves of the Atlantic Ocean, which cause millions of dollars' damage to property and land along the eastern coast of the United States, are now being reproduced in a miniature sea at the Institute. In this little ocean, with its concrete shore line and sandy beaches, Professor Kenneth C. Reynolds '25 is studying the behavior of waves with the object of designing a seawall which will hold the storm waves at bay and prevent erosion of the land, costly flooding, and property damage.

Year after year, storms disrupt transportation lines, destroy or flood homes in seacoast towns, and wash away valuable land without restraint. Although man has built seawalls of various shapes of stone and concrete, the ocean waves, driven by gales and the power of the tides, continue to take an annual toll in property damage amounting to millions of dollars. The menace of the sea has become so serious that engineers familiar with conditions regard this problem as one of great public concern.

The scientific studies of sea waves now being made in the River Hydraulic Laboratory at Technology are believed to be the first of their kind. The investigation employs the new technique of the hydraulic engineer, who has found that he can reproduce conditions of nature in miniature scale and make observations impossible by any other means. When he finds a solution for his problem he simply applies it in full scale to the actual conditions of nature, with a high degree of assurance that it will prove effective. By this means the design of dams, the control of rivers, and the maintenance of channels in harbors are being studied with great success.

The Institute's laboratory ocean is 20 feet long and six feet wide. A wedge-shaped plunger moving up and down at one end creates the miniature waves. From the moment they start rolling shoreward to break upon a sandy beach and hurl themselves against the tiny seawall, their behavior is observed. As they break against the seawall and toss spray several feet high, which is equivalent to from 25 to 60 feet in the majestic scale of nature, they carry sand and pebbles beyond the wall just as the sea does on innumerable Atlantic seaboard beaches.

The experiment continues for a time and then the amount of sand which has been carried over can be measured. With the same storm conditions a different height of wall or a change in shape of the face may be tried until the best design for a given beach section can be obtained.

Waves from various directions and for different high tides will be imitated so as to thoroughly investigate the entire subject.

In the tests thus far made, the sand has become undermined near the wall just as it does in nature. Methods for remedying this are to be investigated as well as the effect of breakwaters or other forms of offshore protection.

The best design in the miniature having been found, the results will be transferred to nature, thus eliminating the great waste now involved in trying out and altering this or that expensive scheme in a vain attempt to decrease this enormous annual property damage.

Three Years of the Loan Fund

Including loans authorized for 1933-1934, nearly 1,300 students will have been assisted in financing their education at the Institute by loans from the Technology Loan Fund, which was established three years ago by a group of prominent Alumni under the leadership of Mr. Gerard Swope '95, it was announced recently.

The fund was created to aid those students who, while exceptionally well qualified to undertake a scientific or engineering education, were without sufficient financial resources to realize their ambition.

In the three years up to June 30, 925 students had benefited by loans amounting to \$436,525. Of a total of 1,709 applications for loans, 73% were granted, Dean H. E. Lobdell '17, Chairman of the loan board, stated. The average loan per man up to the present has been \$472.

For the next academic year, loans amounting to \$173,751 have already been authorized to 422 students. The corresponding amount a year ago was \$153,530. The total loans for the coming year are expected to reach \$234,000.

Child Growth and the Seasons

That healthy children gain weight more slowly during April, May, and June than at any other time of year is revealed in a study of seasonal fluctuations in rates of child growth, recently completed by Dr. Clair E. Turner '17 and members of the Public Health Research Laboratory of the Institute.

This research, which included periodic measurements of several thousand Greater Boston school children, was made with special reference to seasonal changes in the weight of clothing worn.

Children were found to gain weight fastest in the fall and early winter months, particularly during October.

In the southern hemisphere these seasons of fast and slow growth are reversed. The study also indicates that many children gain height most rapidly during that time of year when their increase in weight is slow. With the onset of warm weather, boys were found to gain weight more slowly than girls, probably because of the sharper rise in boys' summer activities.

This fluctuation in growth rate Dr. Turner attributes largely to seasonal changes in habits of living, especially in diet and amount of activity. Children with better health habits showed less growth change with the seasons than did other groups.

Dr. Turner's conclusions are of particular significance because of the close relationship existing between a child's normal growth and his good health. Among the many factors previously known to affect the growth rate are family traits, racial stock, nutrition, the work of certain glands, health habits and activity, and freedom from illness and physical defects. Dr. Turner now adds changes of season to the list of definite factors in child development.

Alumni Regional Scholarships

The award of alumni regional scholarships to eight students in various parts of the country whose preparatory school records show exceptional promise was announced recently at the Institute.

The Schenectady Regional Scholarship was awarded to John B. Pitkin, son of Arthur F. Pitkin of 33 North Ferry Street, and a graduate of the Pawling School. He was nominated by the Schenectady regional committee, of which Ralph C. Robinson '01 is chairman.

Philip H. Peters, son of Frank Peters of 346 Elm Park Avenue, Elmhurst, Ill., received the Chicago Regional Scholarship. Peters is a graduate of Oak Park and River Forest Township High School, and was nominated by Ernest Kohler, Jr. '29, regional committee chairman.

The Kansas City award went to Vern E. Dress, son of Mr. and Mrs. Harvey E. Dress of 4302 North 33rd Street, Omaha, Neb. Mr. Dress is a graduate of the North High School of that city. His nomination came through Charles E. Brown '20.

William R. Remalia, son of Mr. Carl A. Remalia of 129 Margaret Street, Mt. Oliver, Pa., was the recipient of the Pittsburgh scholarship. He is a graduate of the Allegheny High School. Thomas Spooner '09 is chairman of the Pittsburgh committee.

The regional committee of Denver, headed by Harold O. Bosworth '02,

selected Duane O. Wood, son of Mr. and Mrs. E. C. Wood of 837 Lafayette Street, for the award. He attended East Denver High School.

Miss Margaret S. Vinson, daughter of Mr. and Mrs. S. L. Vinson of 1209 Jefferson Street, Washington, D. C., and graduate of the McKinley High School, was the only girl nominated for a regional scholarship. The District of Columbia committee is headed by the Hon. Proctor L. Dougherty '97.

The Philadelphia scholarship went to Paul W. Allen, son of Mrs. Gertrude W. Allen of 451 Harvey Street, and a graduate of the William Penn Charter School. Greville Haslam '15 is chairman of the Philadelphia committee.

Robert D. Morton, son of Mr. and Mrs. J. A. Morton of 2125 Overbrook Road, Lakewood, Ohio, received the Cleveland award. The regional committee is headed by Willard G. Loesch '21.

Rise in Scholastic Standings

For the third successive year, comparative scholastic standings have been computed for activity and non-activity groups, the detailed results being shown in the adjoining tabulation. Definite improvement is to be noted particularly in the averages of dormitory residents.

The general average of all undergraduates as of June, 1933, moved 0.17 points to 3.28 as compared with June, 1932, and the average of dormitory residents rose 0.11 to 3.34. The average of 633 men in 26 activity groups moved upward 0.06 to 3.42, while the average of fraternity men increased 0.04 to 3.14 during the period.

A European Industrial Tour

A group of nine students of the Department of Business and Engineering Administration spent the summer on what is believed to be the first industrial camping tour of Europe. The trip was the third industrial tour to be sponsored by the department in conjunction with the Thorne-Loomis Foundation of New York, the previous two having been through the United States.

The group took with them one of the Foundation's specially equipped buses, which contained sleeping accommodations and equipment for cooking. The trip was arranged by Professor Erwin H. Schell '12, Head of the Department, who preceded the party to secure permission to inspect various plants. John M. MacBrayne, Jr. '31 of the department staff acted as business manager.

In the course of the 4700-mile jaunt, the group visited typical industries as well as major points of interest in France, Belgium, Germany, Austria, Holland, and Czechoslovakia. In Germany, whose political situation proved most interesting, they interviewed Dr. Otto D. Schaeffer, Head of the German General Board of Efficiency, and were told of the work of that body. Brief visits to Geneva and London completed the itinerary.

COMPARATIVE SCHOLASTIC STANDINGS OF UNDERGRADUATE ACTIVITY, DORMITORY, AND FRATERNITY GROUPS

(Based on June 1933 Ratings)

	Average	Increase Over June 1932	Corresponding Rank — June 1932
1. Tau Beta Pi.....	4.27	0.20	1
2. Alpha Chi Sigma.....	3.881	**	..
3. Officers of the M. I. T. A. A.....	3.878	0.338	9
4. Phi Beta Delta.....	3.83	0.21	4
5. The Tech Management.....	3.709	*0.27	2
6. Officers and Representatives Combined Professional Societies.....	3.649	0.028	3
7. Varsity Sports Captains.....	3.626	0.586	39
8. Wearers of the "T".....	3.559	0.42	29
9. Benchmark Management.....	3.522	*0.088	5
10. Institute Committee.....	3.517	0.397	33
11. T. E. N. Staff.....	3.515	0.245	20
12. Lambda Chi Alpha.....	3.48	0.24	22
13. Voo Doo Staff.....	3.454	0.366	34
14. Combined Musical Performers.....	3.452	0.122	15
15. M. I. T. Student House.....	3.44	**	..
16. Chi Phi.....	3.43	0.21	25
Average of the 633 men in 26 activity groups	3.42	0.06	..
17. Beta Theta Pi.....	3.42	0.23	27
18. Voo Doo Management.....	3.408	*0.182	6
Average of the 253 men on staffs of activities but not holding managerial or executive positions.....	3.405	0.058	..
19. Technique Staff.....	3.393	*0.177	7
Average of the 132 men engaged in dramat- ics and musical activities.....	3.367	0.036	..
20. Kappa Sigma.....	3.36	0.00	14
21. Phi Kappa Sigma.....	3.35	0.34	41
Average of the 163 men engaged in publica- tion activities.....	3.348	*0.038	..
Average of the 180 men engaged in athletic activities.....	3.345	0.129	..
Average of 443 Dormitory Residents.....	3.34	0.11	..
22. Tech Show cast, chorus and orchestra...	3.331	**	..
Average of the 150 men holding managerial and executive positions in activities.....	3.331	*0.117	..
23. Combined Musical Clubs Management...	3.325	0.199	32
24. Dormitory Committee.....	3.305	*0.145	12
25. Phi Mu Delta.....	3.30	0.23	36
26. Wearers of Varsity Athletic Insignia other than "T".....	3.297	0.02	18
GENERAL AVERAGE ALL UNDERGRAD- UATES.....	3.28	0.17	..
27. T. C. A. Cabinet.....	3.274	*0.251	10
28. Phi Gamma Delta.....	3.26	0.13	30
29. Phi Sigma Kappa.....	3.24	*0.08	16
30. Tech Show Staff.....	3.236	**	..
31. The Tech Staff.....	3.214	*0.029	21
32. Theta Delta Chi.....	3.16	0.03	31
33. Theta Chi.....	3.15	0.12	40
34. Phi Delta Theta.....	3.14	0.09	38
Average of the 598 members of the 25 Social Fraternities (Does not include Tau Beta Pi and Alpha Chi Sigma).....	3.14	0.04	..
35. Delta Tau Delta.....	3.11	0.19	45
36. Sigma Chi.....	3.107	*0.103	26
37. Alpha Tau Omega.....	3.08	*0.15	24
38. Sigma Alpha Mu.....	3.06	0.07	42
39. Sigma Alpha Epsilon.....	3.04	*0.24	17
40. Tech Show Management.....	3.033	**	..
41. Phi Beta Epsilon.....	3.025	0.105	46
42. Theta Xi.....	3.023	0.073	44
43. Dramashop.....	3.00	*0.52	11
44. Technique Management.....	2.996	*0.235	23
45. T. E. N. Management.....	2.981	*0.579	8
46. Sigma Nu.....	2.94	*0.11	37
47. Delta Upsilon.....	2.92	0.04	47
48. Varsity Sports Managers.....	2.894	*0.186	35
49. Delta Kappa Epsilon.....	2.86	0.03	48
50. Delta Psi.....	2.68	*0.47	28
51. Phi Kappa.....	2.52	*0.04	49
52. Phi Iota Alpha.....	2.37	*0.62	43

* Decrease

** Not rated in June 1932

ADVERSARIA

Technology and Reconstruction

¶ In the Federal Administration and in its program of reconstruction, Technology men are playing important parts. As Director of the Budget, LEWIS DOUGLAS '17 has, of course, held a prominent position, and GERARD SWOPE '95 and ALFRED P. SLOAN, JR. '95, as members of the Industrial Advisory Board, "instruct and advise" the Administration.

¶ It is in the Public Works Administration that we naturally find the most Technology names. Administrator Ickes' chief assistant is Colonel HENRY M. WAITE '90, of Cincinnati, who is Deputy Administrator of Public Works and a member of the special Board of Public Works (this Board also includes Mr. Douglas).

Colonel Waite has a long record of achievement in municipal administration, engineering, transportation, and business. He has been City Manager of Dayton, Ohio, and chief engineer of Cincinnati. It was in the latter city that he won fame as the builder of the 40-million-dollar Cincinnati Union Terminal. He has held a number of important construction and operation posts with railroads and in 1905 was superintendent of the Seaboard Airline. During the War, he served as Deputy Director General of Transportation and after the Armistice, as deputy for transportation with the Third Army at Coblenz and also as assistant to the officer in charge of civil affairs at advance general headquarters at Treves, Germany. Colonel Waite is past President of the International Association of City Managers and the past Vice-President of the American Society of Civil Engineers.

¶ CLARENCE McDONOUGH '12, of New York City, has been appointed Director of Engineering for the PWA. Mr. McDonough, during a very active career, has been engaged in nearly 100 engineering projects in all parts of the United States and in Canada, South America, Great Britain, France, Italy, Belgium, Spain, and Greece.

¶ Among the state engineers appointed by Administrator Ickes are: LESLIE A. HOFFMAN '17 (Connecticut and Rhode Island), WILFORD W. DE BERARD '01 (Illinois), FRANCIS C. WILLIAMS '84 (Wyoming), and Colonel CHARLES R. GOW, a member of Technology's Faculty from 1913-1920 and from 1928-1930 (Massachusetts). JOHN H. CATON, 3RD '08, will assist Mr. Hoffman in Rhode Island, and T. B. PARKER '11 is assistant engineer for Massachusetts.

¶ WILLIAM E. SWIFT '95 and THOMAS C. ATWOOD '97 have been members of the RFC organization and JEROME C. HUNSAKER '12, new head of the Institute's Department of Mechanical Engineering, has lent his services to the NRA during

the past summer. CARROLL W. BROWN '99 is working in the Section of Purchases of the Federal Coordinator of Transportation and WILLIAM B. POLAND '90 is conducting research. NELSON SLATER '15 is one of the six deputy administrators under the NRA.

In the realization that the above record is not complete, the Review Editors would welcome the names of additional Technology men who are participating not only in the general reconstruction program but in the work of any of the departments of the Federal Government.

Technology and "The Century of Progress"

¶ Technology's influence is still more apparent in Chicago's Century of Progress Exposition. In 1930 the Fair authorities appealed to the National Research Council for advice in formulating the science exhibits. That body appointed a Science Advisory Committee for the Fair which included FRANK B. JEWETT '03, President of the Bell Telephone Laboratories, Inc., Chairman; MAURICE HOLLAND '16, Director; and ROBERT P. SHAW '23, Secretary. This able committee organized the science exhibits. In the ceremonies of welcome to the visiting group of foreign scientists during the opening weeks of the Exposition, President KARL T. COMPTON played an important part.

¶ Next to the emphasis on science, the architecture of the Fair is one of the most striking aspects and here again Technology men made important contributions. The Architectural Commission included RALPH T. WALKER '11 and RAYMOND M. HOOD '03, the latter designing the Electrical Group, the Social Science, and the American Radiator Buildings.

¶ LOUIS SKIDMORE '23 was Chief of Design of the Department of Works and Assistant to the General Manager in charge of Architecture. WILLIAM E. MUSCHENHEIN '25 and SHEPARD VOGELGESANG '26 worked on the exterior and interior color designs, respectively, and JOHN H. RAFTERY '25 was designer for the Concessions Department. ERNEST A. GRUNSFELD, JR. '18, already known as the architect of the Adler Planetarium, designed the Lumber Industries house and WALTER S. FRAZIER '18 and ANDREW REBORI '07 each designed a house in the Model Homes group. Rebori, be it said, also conceived the "Streets of Paris," and collaborated on the A. & P. Carnival and Exhibit.

¶ In the administrative and sales end, NELSON H. DE FOE '25 was in charge of Graphic Arts and Mechanical Exhibits, and ROBERT S. COOK '21 was on the staff of the Department of Works and Concessions. Three alumni were "Founder

Members": WILLIAM B. ALLBRIGHT '78, LEONARD S. FLORSHEIM '01, and THEODORE W. ROBINSON '84. The last named is also a trustee.

Many other Technology engineers and architects assisted in the planning of exhibits and The Review will welcome information about any and all of them. The record as listed above, incomplete though it may be, nevertheless eloquently testifies to the vigorous influence Technology exerts in such a great enterprise as the Chicago Fair.

Retired

¶ SIDNEY A. PARSONS '85, after more than 36 years of service with the Department of Public Works of the Commonwealth of Massachusetts. In June he was the guest of honor at a dinner of his associates in Walker Memorial, at which 108 people were present. For the two years following graduation he was engaged in waterworks construction in Frankfort, Ind., and Beverly, as well as in railroad work in Kansas City. From 1887 to 1891 he was assistant city engineer of Duluth, Minn., and from 1891 to 1897 was assistant engineer in the pioneer development of Everett, Wash. He became connected with the old Massachusetts Highway Commission, forerunner of the Public Works Department, in 1897, and took charge of specifications in connection with the awarding of contracts.

Congratulations

¶ TO HENRY W. UNDERWOOD, JR., Assistant Professor in the Institute's Chemistry Department, on being elected Fellow of the American Academy of Arts and Sciences in May.

¶ TO CHARLES R. RICHARDS '85, on being awarded the Diploma of Honor by Pratt Institute (Brooklyn, N. Y.) for distinguished achievement in the field of industrial and art education. Professor Richards was the first director of the School of Science and Technology at Pratt and is now executive Vice-President of the New York Museum of Science and Industry. Since graduation he has been director of Manual Training of Teachers' College, director of Cooper Union, director of the American Association of Museums, and director of the division of industrial art of the general education board of Rockefeller Foundation.

¶ TO ALONZO J. HAMMOND '91, President of the American Society of Civil Engineers, on being chosen General Chairman of the Construction League of the United States.

¶ TO PORTER H. ADAMS '14, Vice-President of Norwich University, on receiving an honorary degree from that university.

¶ TO LEWIS W. DOUGLAS '17, on receiving an honorary degree from Amherst College. The citation reads: "... who, in

times of lessened public revenue and increased expense, is engaged in saving the national credit by wise and just economy."

¶ TO LAUREN B. HITCHCOCK '20, on becoming Chairman of the Virginia Section of the American Chemical Society.

Appointed

¶ To the Science Advisory Board of the National Research Council at President Roosevelt's order, President KARL T. COMPTON, Chairman, and FRANK B. JEWETT '03, to aid the government in coping with the scientific problems of the new era in American development.

¶ CHRISTOPHER J. CARVEN '84, Commissioner of Public Works for the City of Boston to succeed LOUIS K. ROURKE '95.

¶ ARTHUR C. WILLARD '04, Acting Dean of the College of Engineering of the University of Illinois.

¶ ANTHONY B. ARNOLD '07, Vice-President and General Production Manager of the American Agricultural Chemical Company of New York City.

¶ GEORGE M. J. MACKAY '08, Director of Research for the American Cyanamid Company.

¶ ROBERT T. HASLAM '11, senior Vice-President in charge of operation for the Standard Oil Development Company.

¶ RUFUS E. ZIMMERMAN '11, Vice-President in charge of research and technology for the United States Steel Corporation.

¶ GEORGE E. BARNES '23, Professor of Hydraulic and Sanitary Engineering at the Case School of Applied Science (Cleveland), in which capacity he will head the Civil Engineering Department.

¶ HARRY F. CADE, JR. '28, Principal of the Berkeley Preparatory School, Boston, with the beginning of the fall term.

In the News

¶ William Rupert Maclaurin, son of the late Richard C. Maclaurin (President of M. I. T. from 1909-1920), was married in Jefferson, N. H., September 2, to Elfriede Carter of Newton, Mass.

¶ CASS GILBERT '80, for his opinion that the Mussolini restoration in Rome adds new beauty to the ancient city. "Mussolini is carrying on a very important and admirable project of restoration," Mr. Gilbert said, "cleaning up the slums, clearing away old buildings, building new streets and without in any way impairing the beauty of the ancient city."

¶ WELLES BOSWORTH '89, on being made Commander of the Legion of Honor of France. An account of Mr. Bosworth's achievements recently appeared in the French journal *Beaux-Arts*. Mr. Bosworth is engaged in the restoration of the cathedral at Reims and the palace of Versailles, under the auspices of John D. Rockefeller, Jr. Besides his architectural work, he founded the University Club of Paris.

¶ THOMAS C. DESMOND '09, on being elected an honorary member of the Harvard Chapter of Phi Beta Kappa.

¶ ROBERT E. WILSON '16, Vice-President in charge of research of the Standard Oil

Company of Indiana, on being made general chairman of the committee in charge of the meeting of the American Chemical Society in Chicago, September 10-15.

¶ RICHARD L. WHORF '18, for his work in deciphering the picture writing system of the Mayan Indians of Yucatan. He believes their writing was based on phonetic principles, the hieroglyphics being used to stand for sounds in the language, a view previously advanced but ignored these past 40 years. Publication of Mr. Whorf's paper is hailed as important to American archaeology. Professor Tozzer of Harvard remarked: "It is with no little satisfaction that the Peabody Museum publishes his paper on a subject which most Maya students have long felt was practically closed. With great acumen and courage, Whorf dares to reopen the phonetic question. His paper is full of suggestions and may open up a vista for further investigations along the trail which he has blazed."

¶ JAMES H. DOOLITTLE '24, for demonstrating the powerful U. S. pursuit plane (700 h.p. Curtiss Hawk fighter) to the China National Aviation Corporation in Shanghai, while on a world tour by plane. The North-China *Herald* gave an extended account of Major Doolittle's life and many achievements in the field of aviation. During his stay in Shanghai he has been the guest of the local Technology club there.

Written

¶ By FRANK HAYES '90, an article in the *Milwaukee Journal* on the "whaleback" steamship, *Christopher Columbus*, built to carry passengers to the fair grounds at Chicago in 1893 and until recently in passenger service between Chicago and Milwaukee.

¶ By LUTHER R. NASH '94, a reference book entitled "Public Utility Rate Structures," published by McGraw-Hill Book Company, Inc.

¶ By LAURENCE A. HAWKINS '99, a biographical sketch of WILLIS R. WHITNEY '90, in the September, 1933, issue of *Industrial and Engineering Chemistry*.

¶ By CARL J. TRAUERMAN '07, two articles in the *Mining Review* of June 6: "The New Deal Arrives in Butte" and "Therefore, Wherefore, Bondholder! Therefore, Wherefore, Gold!" and an address on gold and the metal situation delivered before the Butte Rotary Club in August, which received favorable editorial comment in the *Montana Standard*.

¶ By JAMES A. TOBEX '15, a book (Dr. Tobey's tenth) entitled "Milk, The Indispensable Food," published in June by Olsen of Milwaukee.

¶ By MANUEL S. VALLARTA '21, a paper on "Interpretation of the Azimuthal Effect of Cosmic Radiation," which appeared in the *Physical Review* for July 1.

Deaths

¶ WILLIAM W. LEWIS '70, on August 19.

¶ HENRY L. LEACH '76, on June 11.

¶ HENRY N. SWEET '85, on July 28. (Account in class notes.)

¶ MRS. RICHARD P. BAER '86 (Alice M. Getchell), on July 3. Mrs. Baer was born in Brookline in 1863 and was married to WILLIAM H. KERR '84, II, of Durham, N. C., who was drowned in 1895 while saving the life of his second son. In 1908 she married Richard P. Baer of Catonsville, Md. She is survived by her husband and six children: William C. Kerr '08, X; C. Phillips Kerr '11, II; Spencer H. Kerr, Dr. H. Dabney Kerr, Margaret G. Kerr, and Alice Hall Kerr.

¶ FREDERICK H. MUHLENBERG '88, on June 18. Mr. Muhlenberg had been a practicing architect in Reading, except for a few years, since 1888 and was a member of the American Institute of Architects.

¶ WALTER K. SHAW '88, on July 6. (Account in class notes.)

¶ JOHN M. SULLY '88, on July 15. Mr. Sully was a prominent mining engineer and for the last 25 years general manager of the Chino Mines in New Mexico, now controlled by the Kennecott Copper Corporation. He is survived by his wife and five children. — Mr. Sully was a regent of the New Mexico State School of Mines and a member of the American Institute of Mining and Metallurgical Engineers, the Mining and Metallurgical Society of America, and the American Mining Congress. He was also Vice-President and managing director of the Gallup (N. M.) American Coal Company.

¶ FRED P. HAM '89, on August 18.

¶ WILLARD G. BIXBY '89, on August 16. Mr. Bixby started in manufacturing shoe blacking — a business established over 50 years ago in New York by his uncle which made the name of Bixby a household word in the '90's and first part of this century. Several years ago he began to practice consulting engineering. More recently he conducted a credit office in New York. Mr. Bixby also owned an experimental nut farm, containing more than 1,000 varieties of nuts. He was Secretary and former President of the Northern Nut Growers Association.

¶ JAMES E. BORDEN '90, on January 20.

¶ WALDO A. MARTIN '90, on July 18.

¶ MARY F. THOMPSON '91, on February 25.

¶ THOMAS H. YARDLEY '91, on June 24.

¶ ELISHA LEE '92, on August 6. (Account in class notes.)

¶ WALTER H. VORCE '93, on August 23.

¶ LEONARD W. MINOT '94, on July 19.

¶ LOUIS K. ROURKE '95, Boston's first public works commissioner, on August 23. (Account in class notes.)

¶ SAMUEL F. WISE '96, on July 1.

¶ HERBERT I. LORD '98, on May 25.

¶ HENRY B. NEWHALL '98, on April 18.

¶ HELEN L. BURR '99, on July 16.

¶ FRANCIS W. DAVIS '03, on July 9. (Brief account in class notes.)

¶ HARRY H. MARSHALL '03, on August 7.

¶ LEO J. DEVLIN '05, on May 20.

¶ ELMO C. LOWE '05, on June 11.

¶ WILLIAM H. WARNOCK '05, on June 18.

¶ ARCHIE J. OREM '11, date unknown.

¶ HENRY NIEMANN '15, on January 21.

¶ FRANKLIN L. KLINE '18, on June 21.

¶ JOHN W. HEPBURN '28, on June 21.

¶ WILLIAM G. COLGAN '30, on July 15.

¶ JOHN M. LYNCH '32, on June 7.

¶ STANLEY J. WENGAL '32, on July 22.

NEWS FROM THE CLUBS AND CLASSES

CLUB NOTES

Technology Club of Shanghai

The Shanghai Technology Club is a very active alumni club and we always want to know in advance whenever any alumni are coming our way so that we may have the opportunity to meet them. Alumni traveling in China, therefore, are requested to send word to the club, P. O. Box 434, Shanghai, China, in advance of their arrival when possible.

The April meeting of the club was held at Hung Far Low restaurant, Foo Chow Road, on April 12. The hosts for the occasion were: C. Y. Wen '08, Y. M. Chu '14, H. C. Liu '23, T. H. Chou '26, and M. C. Chan '26. There were 41 members and one honor guest attending.

The dinner was served at eight o'clock. Much boisterous spirit was exhibited by those who indulged in drinks, while milder chats were evident among those who preferred eating. Dinner being finished, the President called the meeting to order at 9:30 p.m. The Secretary read the minutes of the last meeting which were accepted. The Secretary then gave a summary of the report from William Moy Ding, our representative on the Alumni Council, regarding the latest developments at the Institute, such as the graduate students' housing plan, the Van de Graaff generator, and so on.

The President, asking the hosts to stand up, thanked them and introduced Major J. H. Doolittle '24 who recently became a member of the club. Business being disposed of, he introduced our guest of honor, Dr. Arthur N. Young, financial adviser to the Chinese Government, as an expert orator on economics. He kept the audience completely absorbed in the subject of Technocracy, presented from an economic point of view, and he outlined the shortcomings of the Technocrats. At the conclusion, W. A. Adams '10 remarked about the Chinese new dollar and the tael, which provoked considerable laughter. — The meeting adjourned at 10:30 p.m. with three M.I.T. cheers led by S. S. Kwan.

The May meeting of the club was held at the Bankers' Club on May 8. The hosts for the dinner were: Y. T. Tsai '10, T. C. Hsi '15, C. P. Hsueh '19, A. E. Golding '21, and Z. P. Zien '24. Twenty-eight members attended.

The meeting was called to order by President Tse at 9:30 p.m. The Secretary read the minutes of the last meeting which were voted accepted. The President thanked the hosts in a fitting manner and reported the recent visit of Dr. Smoley '19, who was with the Standard Oil Company at Sumatra. Dr. Smoley's visit was so brief that he could not at-

tend our regular meeting, but was nevertheless entertained by our President. The Secretary reported the confirmation from Professor Locke of the formal election of W. G. L. Moy Ding as our representative on the Alumni Council.

The Treasurer reported that membership dues amounting to \$112 had been collected, representing payment from 60% of the members. As compared with the corresponding period in 1932, an increase of 35% was noted. The alumni fund, amounting to \$425.25, was turned over to the Treasurer by Walter Kwok of the 1932 administration. It was decided that this fund should be used to buy some suitable gift for the Institute whenever there should be occasion for it. The President appointed the following men as trustees for this fund: Walter Kwok, M. C. Chan, Z. P. Zien, Joe W. Young, H. C. Liu, and H. J. Wu.

The President expressed regret that Major J. H. Doolittle was unable to speak at this meeting because of his urgent departure for the South, but announced that our next meeting would be a welcome party for Major Doolittle upon his return. Paul S. Hopkins '10 had consented to be the host for that occasion which would be held at Husi Club, one of the most exclusive country clubs in Shanghai. The President appointed Ki Chun, Walter Kwok, and T. K. Kao as a committee to take charge of the affair. — The meeting adjourned at 10:15 p.m.

A special meeting of the club was held at Husi Country Club on May 25. Paul S. Hopkins acted as the host and Major Doolittle was the guest of honor. Thirty-nine members attended.

Under the efficient management of the committee, comprising Ki Chun '20, T. K. Kao '15, and Walter Kwok '27, the party left town in automobiles at five p.m., arriving at the Club at 5:30, when a group picture was taken. For the rest of the evening the members amused themselves in various games both indoors and outdoors, affording excellent relaxation after their office work.

The party assembled for dinner at 7:45 and at 8:30 the President called the meeting to order. The Secretary read the minutes of the last meeting which were accepted. A letter from C. K. Crofton of the Rochester Club praising our club activities having been read and other business disposed of, the President presented Major Doolittle as a good example of what M.I.T. can turn out in its specialized fields of engineering. Major Doolittle spoke about the great possibilities of aviation development in China and dealt in considerable detail with recent developments in airplane speed, safety, and comfort. After the lecture the party transformed into a smoker, during which rivalry in story telling resulted. The

spirit of Tech fellowship and congeniality completely prevailed throughout the evening. The meeting was concluded with the Stein Song and M.I.T. yell led by Frank Ede '23. — M. C. CHAN '26, Secretary, Box 434, Shanghai, China.

Technology Association of Japan

J. K. Minami '31 contributed the following information concerning the activity of Technology graduates in Japan: "Former Institute men have the Technology Club of Japan in the Sanshin Building, Tokyo, as their center for social purposes and for diffusing information concerning one another. You might be interested in the officers of the club for this year — the election taking place annually in May: President, Takanaga Mitsui '18; Vice-Presidents, W. W. Stevens '98, Kenzo Goto '11; Secretaries, Masaru Kametani '25 and Yoshio Kubota '23; Treasurer, Utaro Tsukakoshi '07; Advisers, Masanao Endo, Keiji Ito '16, Kaseshi Oto.

"Monthly meetings are held on the second Tuesday of each month when members present discussions on subjects of interest. There are now about 45 members, 30 of whom are located in Greater Tokyo. — I am now with the engineering firm of Dr. Tachu Naito, the earthquake-proof construction specialist." — MASARU KAMETANI '25, Secretary, Mitsui Gomei Kaisha, 1 Surugacho Nihonbash, Tokyo, Japan. YOSHIO KUBOTA, Assistant Secretary, Kansei, Honbu Shibu, Navy Department, Tokyo, Japan.

The Technology Club of New York

The last meeting of the club was held on May 16 at 8:30 p.m. And what a meeting! The actual business of electing new officers was finished in five minutes. Then the three barrels of beer (kindly donated by Page Golsan '12) were tapped and the 100 men present were able to quench their thirsts while our retiring President, Richard H. Ranger '11, and our new President, James A. Burbank '16, made a few remarks and the Dick Ranger Silver Cup, a perpetual bridge trophy, was presented to the club. Finally, we were entertained by a speech from none other than our famous and beloved Tubby Rogers. Professor Rogers told us of the transition from the Technology of our days to the Institute of today. His talk was excellent and took us back to the days of our youth. Many a laugh was heard, though several tears diluted the ever-emptying steins of beer.

James G. Walker '26 performed nobly at the piano, keeping in tune the various quartets which insisted on singing simultaneously. When the last drop of beer had flowed, the party broke up, the

tobacco smoke settled, and peace once more reigned over the Technology Club of New York. — LELAND D. WILSON '20, *Secretary*, 22 East 38th Street, New York, N. Y.

Technology Club of Toledo

The following clipping from the Toledo *Blade* of June 17 fully describes Dr. A. W. Rowe's visit to the club: "The vision beloved of sensational novelists — the creation or alteration of personality through regulation of the mysterious ductless glands — has no spokesman in Dr. Allan Winter Rowe, professor of physiological chemistry at Boston University, research expert among the thyroids, pituitaries, and gonads with which much of the pseudo-scientific fiction has been concerned of late years.

"Speaking before more than 100 members of the Toledo Academy of Medicine in St. Vincent's hospital Saturday, Dr. Rowe called for caution in medicine's adventures in the enchanted realm of the ductless glands. Except for some bright exceptions, as in the case of insulin, science at the present time is not far beyond some of the early investigations in the field of the ductless glands and their influence upon the mental and physical behavior of patients, he said.

"Dr. Rowe pointed out that much work remains to be done in the study of the glands and their work and that the time is still in the future when physicians unerringly may trace a disturbance to a glandular cause and effect an adjustment beneficial to the patient. Dr. Rowe told of his glandular studies with several groups of patients, and exhibited charts illustrating the incidence of apparent endocrinological causes, which were frequent, among patients afflicted with mental disorders.

"Dr. Rowe, who is President of the Alumni Association of the M.I.T., was the luncheon guest in the Chamber of Commerce of a group of civic leaders, and later visited the Museum of Art. He will be the dinner guest of the Toledo chapter of the alumni group Saturday night." This was held at Inverness Club.

The club had a summer meeting on August 8 at which resolutions were passed, thanking Mr. Justus Wilcox of the Toledo Museum of Art and Dr. E. J. McCormick of the Toledo Academy of Medicine for their splendid efforts in aiding our club in making the visit of Dr. Rowe such a marked success. — WILLIAM F. DONOVAN, JR. '24, *Secretary*, 305 Spitzer Building, Toledo, Ohio.

The Technology Club of Rochester

On April 14 the club had the privilege of entertaining Dr. Allan W. Rowe '01, who was making a number of visits to local alumni clubs. After a visit to the Medical School of the University of Rochester and an inspection of the Kodak Park Works of the Eastman Kodak Company, he was our guest at a dinner meeting at the University Club. Following the dinner, Dr. Rowe was introduced

by Sydney Alting '11, President of the club. The address, which was delivered in Dr. Rowe's inimitable style, touched upon numerous points of genuine interest to the alumni group. After his "carefully prepared address," Dr. Rowe answered many questions concerning the state of Technology affairs as they were put to him by the various members. The members of the club who took advantage of this opportunity to meet Dr. Rowe found the occasion a stimulating one in the maintenance of contact with the Institute.

The new Beach Club of the University Club of Rochester, located on the shore of Lake Ontario, was the scene of an outing on the afternoon and evening of Saturday, June 24. The recreational facilities of the Beach Club afforded numerous outdoor activities, winding up with an hilarious game of baseball. About 35 members were present at a buffet supper, served out of doors to a hungry crowd. No business was transacted, since the purpose of the outing was to provide a general good time to close the season.

Although contributions to the Scholarship Fund have not equalled the results of previous years, sufficient money is at hand to enable the club to make its annual award of a \$500 scholarship to a student from the Rochester area, who will enter M.I.T. this fall.

During the absence of Larry Tufts '29, Secretary of the Club, the work of the Secretary is being handled by H. S. Gardner, Jr. — HOWARD S. GARDNER, JR. '30, *Acting Secretary*, Building 46, Kodak Park, Rochester, N. Y.

The Technology Club of Cincinnati

There has not been much activity in the local group in Cincinnati since the last visit of Dr. Rowe which occurred in the spring. Pursuing a custom which has now been in use since about 1895, we are still meeting for lunch on Tuesdays. So far as the memory of man goes, there has not been a single Tuesday since the plan was started that two or more have not met for "Tech Lunch." Our gatherings are always interesting and vary in size from six to 20 except on special occasions when a considerably larger number show up.

We have met at various famous places, most of which have for one reason or another ceased to exist (several by reason of a catastrophe known as the 18th Amendment). We are now meeting in the well-known Bird of Paradise Room of the Hotel Gibson and are pleased to have any strolling Technology men join us most informally. We can promise an interesting discussion from bridge to bridges; highly diverting problems in higher mathematics, architecture, chemistry, city planning or beautifying, or what you will. Choose your own title. Authoritative answers are given to all questions.

We are quite pleased to note that Washington has recognized the ability of one of our interesting members and has called Col. Henry M. Waite '90 to help get \$1.50 worth for each \$1.00

spent in public works. His record on Cincinnati's new Union Terminal has certainly proven his ability to do big things in a big way.

One of the main topics of our discussions lately has been, of course, the N.R.A. and much thought has gone into the best way to make this wonderful movement effective. Several of our architect members are much interested in the movement to eliminate the slum district and are making studies in that connection.

Our fall program will probably be well under way by the time these notes appear. — STUART R. MILLER '07, *Secretary*, The Wm. S. Merrell Company, 5th and Pike Streets, Cincinnati, Ohio.

Technology Club of Chicago

On the evening of June 29 the Chicago Club gave a dinner in honor of President Compton. Besides President Compton, the Club had the honor of entertaining Vice-President Bush of the Institute and Mr. Redfield Proctor, President-Elect of the Alumni Association. Outside guests of the evening were President Hotchkiss of Armour Institute of Technology, Chicago, and Mr. Don Compton, cousin of President Compton. There were present representatives of all but ten classes, from 1884 to 1933. The class having the largest representation was the class of 1930, which had approximately 15. The total attendance was approximately 150, of which one-third was made up of faculty from the Institute and alumni outside of Chicago who were attending the World's Fair and the meetings in connection with Engineering Week.

The club was particularly pleased to entertain Professor Harry W. Tyler '84 whom practically every one of the older classes knew as Head of the Department of Mathematics.

The dinner was held at the University Club and started off with the singing of the Stein Song and a "We Are Happy" cheer led by President Cooley of the Chicago Club.

During the dinner Tech songs were sung with the assistance of the Chicago Singers Male Quartet. Later during the evening the quartet sang several numbers very acceptably.

Philip W. Moore '01, who has acted as toastmaster so acceptably on previous occasions, again lived up to his usual reputation as an ideal master of ceremonies.

Messrs. Proctor and Bush both spoke briefly on Institute affairs. President Hotchkiss of Armour Institute of Technology gave a brief welcome as representative of a sister institution.

In spite of the Chicago midsummer heat, the entire group remained to the end to hear the remarks of President Compton. The general impression of the alumni present seemed to be that they are all happy that the Institute's affairs are in the hands of a man whose scientific attainments, organizing ability, and good fellowship are outstanding.

The dinner closed with singing of the Stein Song and a regular M.I.T. cheer.

Prior to the dinner the officers of the club discussed with President Elect Redfield Proctor of the Alumni Association and J. Rhyne Killian, Jr., Editor of the *Technology Review*, ways by which the Chicago Club could be of more service in coördinating the interests of club members with Institute activities and alumni affairs. — WINFIELD I. MCNEILL '17, *Secretary*, Colgate-Palmolive-Peet Company, 919 North Michigan Avenue, Chicago, Ill.

The M.I.T. Club of Western Pennsylvania

On June 16, the club held its annual dinner and final business meeting of the 1932-1933 season at the University Club, Pittsburgh. The speaker of the evening was Dr. Thomas S. Baker, President of the Carnegie Institute of Technology.

The subject of Dr. Baker's address was "Impressions of Germany," based upon his experiences during the early months of the year when he lectured at various German universities. He pointed to the political trend in Germany as an extreme example of the world-wide flare-up of nationalism — a development which appeared to deprecate the progress of science in annihilating distance by the establishment of international means of communication and travel.

The growth of Nazi power, he said, was partly a product of the depression, and partly an outcome of two modes of thought: (a) that since the War, Germany has suffered from the alleged brutality of other nations and must now be liberated, and, (b) that various elements of the German population are internationally minded and therefore represent a menace to Germany's nationalistic aspirations.

Dr. Baker described Naziism as being modeled after Italian Fascism, following much of the same rigmarole of terminology, salutes, and paraphernalia. However, Mussolini appears to have turned a cold shoulder to Germany, and to have favored Austria against Germany. At the time, it looked as though Mussolini was trying diligently to prevent an *anschluss* between Germany and Austria.

Hitler's personal power is the result of his oratorical abilities and his marvelous understanding of mob psychology. He had, in recent weeks, been attempting a policy of moderation, but the more inflammable members of his cabinet and his party were rabidly sponsoring violence.

In university cities, reported Dr. Baker, the large student support and the impetuous activities of the students have given the movement a somewhat juvenile character. The students have been milling about excitedly, interfering with lectures and classes by the throwing of "stink bombs", and have been sending committees to demand the expulsion of "non-Aryan" professors and students.

The repressive measures used by the Nazis in enforcing their domestic policy have been so violent and cruel that the entire world stands aghast and amazed. Personal liberty and expression of opinion have been constrained by force. Some

150,000 people were estimated to be in "protective arrest". Various newspapers have been suspended, and the news permitted to the Germans has been so distorted as to favor the government; consequently, the outside world knows much more about the political situation in Germany than do the Germans themselves.

Dr. Baker concluded his address by summarizing the internal economic situation in Germany, and describing the various subtle rationalizations which serve as pretexts for displacing the German Jews from the economic and professional positions which they have won through years of study, discipline, and effort.

Following Dr. Baker's address, the Club held its final business meeting of the year, and elected the following officers for the year 1933-34: President, Howard W. Dexter, Jr. '23; Vice-President, John T. Nichols '22; Secretary, Samuel J. Helfman '24; Assistant Secretary for Membership, Millard M. Greer '26; Assistant Secretary for Publicity, Charles M. Boardman '25; Treasurer, Malcolm G. Davis '25; Alumni Council Representative, Luther K. Yoder '95. — SAMUEL J. HELFMAN '24, *Secretary*, Duquesne Light Company, Pittsburgh, Pa.

CLASS NOTES

1873

The 63d Annual meeting and dinner of the Class Association of '73 was held at the Hotel Bellevue, Boston, on the evening of June 22. The following members were present: Philip D. Borden, George H. Kimball, William P. Leman, Frederick Guild, and George M. Tompson. Letters were received from: W. E. Brotherton, Henry P. Cogswell, Stephen H. Wilder, George O. Carpenter, and H. W. Blaisdell. Dr. F. H. Williams, our President, for many years has been unable to be present. We all hope next year he will be recovered and be with us. There are only 12 of us left. Our average age is 82. As Belden says in a letter just received from his home in California, "we are none of us young any longer."

The following officers were elected for the coming year: President, F. H. Williams; Vice-President, Philip D. Borden; Secretary-Treasurer, G. M. Tompson; Executive Committee, W. T. Leman and Frederick Guild.

Arthur W. Forbes passed on since our last meeting. We all loved him; he was a true American gentlemen. The following letter was received from his daughter, Anna R. Tandien: "I want to express our sincere thanks for the lovely basket of beautiful flowers so kindly sent to the dear little father's funeral. He was so proud of his class of '73. The reunions were always enjoyed greatly by him. It is wonderful how many you all have been able to attend. We took the flowers home and they kept fresh several days. My father had a shock last October and grew slowly weaker. He suffered greatly, but quietly went. We miss him so much. It

is hard to adjust ourselves to the new conditions. I sincerely trust that you are in good health. Thanking you again and with kindest of regards." — GEORGE M. TOMPSON, *Secretary*, 8 Whittemore Terrace, Wakefield, Mass.

1877

As guests of President C. A. Clarke, ten members of the class joined with him to celebrate the Fifth-Sixth Reunion at the Algonquin Club, Commonwealth Avenue, Boston, on June 14.

Of a class of 137 members, there are 36 known living members. There were present: C. A. Clarke, G. W. Kittredge, Joseph P. Gray, Arthur L. Plimpton, Col. George F. Quimby, Byron E. Higgins, Frank I. Sherman, William H. Bucking, B. C. Mudge, Henry H. Carter, and B. T. Williston. Arthur W. Thayer came in for a short time only to greet those assembled. President Clarke was reelected for the coming year as was also Secretary-Treasurer B. T. Williston. A photograph was taken of those present on the front steps. Copies were sent to many of the members of the class.

Since this meeting, the following clipping has been sent to me, which I am sure will be of interest to members of the class: "With 50 years' service in the Patent Office, Frank C. Skinner, examiner in chief, was retired on April 1, 1933, after having received three extensions over the retirement limit. Mr. Skinner was born in Lawrence, Mass., March 28, 1857, and was educated there, graduating from the Lawrence High School. After attending M. I. T. a year, he was appointed to the Naval Academy in 1874, from which he resigned in 1877 because he thought a naval officer's future prospects were poor. He moved to Lewiston, Me., studied law, and was graduated from the Albany (N. Y.) Law School in 1879. He practiced law in Nebraska a short time and then was employed by several industrial concerns in St. Louis.

"Appointed to the Patent Office in 1883, Mr. Skinner became principal examiner in August, 1888, and organized the classification division Patent Office in 1898. Theodore Roosevelt signed the appointment advancing Mr. Skinner to examiner in chief in December, 1908, which office he has occupied to the present time. He became a member of the Board of Appeals in January, 1909, and has been a member for nearly 25 years. In August, 1932, Mr. Skinner was exempted from the rules of the Economy Act by President Hoover that he might continue in office. He has no immediate plans, but to rest. Later he may open a patent law office." — BELVIN T. WILLISTON, *Secretary*, 3 Monmouth Street, Somerville, Mass.

1878

Charles Sedgwick Rackemann died March 29 at his home in Boston, 168 Marlboro Street, in his 76th year. He was born in Lenox, Mass., on June 21, 1857.

After graduation from the Lenox High School, he entered Technology with the Class of '78. He did not graduate, how-

1878 Continued

ever, leaving to attend the Harvard Law School, from which he was graduated in 1881. He began the practice of law immediately, and became one of the leading lawyers in the state in real estate conveyancing.

Mr. Rackemann received his M.A. degree from Williams College in 1898, was a member of many historical societies in the state, and was the author of several works and articles regarding land registration and the transfer of real estate titles.

Mr. Rackemann was very public spirited and much interested in civil affairs, taking a prominent part in town meetings at Milton, and many matters of proposed legislation at the State House. He was President of the Constitutional Liberty League for many years, and as such led a strong fight against the Prohibition Amendment. He was also for a time President of the Legal Aid Society in Boston, and did much important work for that cause.

Although not a Technology alumnus, he was a loyal Tech man, being always present at the class dinner, and a generous donor to all the Tech contributions for many years. Mr. Rackemann married Fanny S. Pomeroy of Stockbridge, in June, 1900. Mrs. Rackemann died in 1927 leaving no children. The last '78 dinner was given by him at his Boston home last January, being attended by all the living Boston members, only four in number. — J. W. ROLLINS, *Secretary*, 6 Beacon Street, Boston, Mass.

1881

The following is an account of the life and achievements of Harry H. Cutler, who died at his home in Coral Gables on May 20, 1933:

Mr. Cutler was born in Brookline, Mass., on August 21, 1859. Following his graduation from the Institute with our class, he was associated with Cutler and Mower, mechanical engineers, of Boston. In 1884-1885 he took the students' course at the Thomson-Houston Electric Company plant in Lynn, becoming Superintendent of the Citizens Electric Light and Power Company in Akron in 1885. Then followed a series of brief connections with the Electrical Department of the Newton and Watertown Gas Light Company, Newton, Mass. (1887-1889); as a manufacturer of electric street lighting fixtures, Newton (1890-1891); and as general manager of the Electrical Expert Company, Chicago (1891-1892).

He organized the firm of Cutler and Hammer (February, 1893), which was later incorporated as Cutler-Hammer Manufacturing Company, manufacturing electric controlling devices. The Company later moved its plant to Milwaukee, where it is still operating. Mr. Cutler was actively engaged with this company as an official and engineer up to the time of his retirement in 1917, when he moved back to Boston. From 1928 until his death, Mr. Cutler made his home in Florida. He is survived by one daughter, Mrs. J. Ralph Tatum, of Coral Gables; a

sister, Mrs. J. E. Young, of Brookline; and a brother, William W. Cutler, of Boston.

Upon his retirement Mr. Cutler took out 76 patents and during his retirement was engaged in the inventive field, taking out several patents on internal combustion engines and train control and propulsion devices during the last years of his life. He was a member of the American Institute of Electrical Engineers, the Boston University Club, the Miami University Club, the Florida Year Round Club, and the Century Club of Coral Gables.

Mr. Cutler's first notable achievement was in designing and reconstructing the arc lighting circuits in Akron, Ohio, in 1885, so as to stop all inductive effects on the grounded telephone lines used at that time. This successful installation caused the withdrawal of a suit for \$40,000,000 brought by the Central Union Telephone Company and it constituted the first electric lighting plant arranged to stop all induction troubles on the telephone lines. His second work of importance was designing and installing at Newton, Mass., in 1887, the high tension alternating current system of incandescent street lighting, using several circuits of 40 25-volt lamps connected in series, directly across the 1,000-volt primaries and carrying transformers on the same lines stepping down to 50 volts. This successful system was used for lighting stores and other business houses six miles from the central station. The generator used was the first one sold by the Thomson-Houston Company and it was exhibited at the National Electric Light Association meeting at the Parker House in Boston in 1887. While in Akron, Mr. Cutler installed and operated the city's first incandescent lighting system.

Mr. Cutler was employed on many occasions as an expert witness for the Thomson-Houston Company and its customers, who were invariably opposed to the New England Telephone and Telegraph Company, whenever said customers asked for an electric lighting franchise. The objections of the telephone company were that an electric lighting system would cause serious induction troubles in the telephones. In every one of these cases Mr. Cutler was able to show that there would be no induction troubles from electric lighting circuits, if the systems he had devised and constructed in Newton, Mass., and Akron, Ohio, and other installations which he had laid out were adopted. — F. E. CAME, *Secretary*, 3081 Ontario Street East, Montreal, P. Q., Canada.

1882

Members of the class and guests met at Baldpate Inn, Georgetown, Mass., on June 6 for their Fifty-First Reunion. Noon was the hour set for the gathering, but with a zeal commendable in one so young, John Low arose that morning before breakfast and, with his son, Bunny, at the wheel, motored to Baldpate, a distance of 250 miles or more, arriving an hour ahead of time. Bravo!

The company having assembled at noon, there followed an exchange of greetings and general conversation, with comments on the fine location of the Inn and the extensive views as seen from the veranda and grounds. Announcement of dinner brought the group to the small dining room occupied by the class a year ago, where an excellent dinner was enjoyed by the following members and guests: Miss Ames, Miss Rachel Snow, Dr. and Mrs. French, Fred Gooding, Charles and Mrs. Jenkins, Lloyd and Mrs. Lewis and their daughter, Mrs. Wyer, John Low and his son, Henry Ross, Arthur and Mrs. Walker, and the Secretary.

After the dinner the names of those who had died since our last reunion were read. Bill Rosing, whom we remember particularly in connection with our first-year military drill, died in January, after an illness that made him an invalid for over two years. In the last letter received from him, dated May 24, 1932, he wrote: "Since leaving the Institute I have railroaded continuously for 42 consecutive years without missing a pay day." He expressed regret at being obliged to miss the Fiftieth Anniversary and continued: "In order to help along the situation and partially compensate for my absence, I enclose a check for \$25 to balance your budget in part." A kind and characteristic act on his part. — The death of Edward Nichols, special student in architecture, on February 21, was chronicled in The Review for July.

John M. Keyes, well known as a double of the late President Theodore Roosevelt, died following an operation in Emerson Hospital, Concord, on May 20. He was a former selectman of the Town of Concord, Chairman of the Board of Health, and at one time a member of the town highway commission. For many years he was in the hardware and electrical business but retired 15 years ago. His connection at the Institute was through his attendance at the School of Mechanic Arts.

Letters from absent class members were read, in whole or in part, by our Assistant Class Secretary, Rachel Snow. Frank Cheney wrote that he would be unable to attend the reunion and ended his letter with the important and most welcome information: "My first grandson is now seven months old and is active and well." Congratulations from each and all of '82!

And speaking of grandsons, George Chapman wrote that he and Mrs. Chapman could not be present at the reunion because they were going to West Point to attend the graduation of a grandson. More congratulations from each and all of '82!

George Faunce and Edgar B. Thompson sent greetings to all and regrets that they could not be with us. — From Wardwell's beautiful letter we quote the following: "One year ago I tempered my disappointment at failing to meet you by promising myself next year. Can it be that mine resemble the Mexican's 'Tomorrow', which he says never comes?"

1882 Continued

Can it be that I have anything in common with the legendary Soul, fated to be forever reborn into this self-same life, without being reincarnated into the succeeding one? I hope not! For I certainly do not wish to live forever here, without being able to join those who have been so surpassingly dear to me. I would rather add my voice to the chorus of '82 even in — well, anywhere, rather than choose another place without it."

In his customary cheerful vein, Adams wrote in part: "My last letter to you was June, 1929, and wound up saying 'maybe this is my swan song', but confidentially I must tell you that I had my fingers crossed, rubbed my rabbit foot mascot while writing that statement, and, more to the point, practiced what a good, pious aunt of mine in Maine had observed and been made happy by for at least eight months of the year.

"I noticed one spring for about three weeks she was quiet and fussed about something, and then one morning, I will always remember the date (April 2), she appeared at breakfast full of life, vim, cheerfulness, bubbling with joy, and on my request to know what had put her in such a joyous mood, she said, 'Well, Ned, I have always noticed if I lived past April 1, I always lived through the rest of the year,' and strange to relate, that has been my experience also. So, in spite of your grins, we have a few months to live and need not worry." Ending his letter — "With sincere good wishes that you are all in good health and 'Aloha nui loa'."

The day following the reunion our Assistant Secretary went to New York, and on June 10 sailed on a steamer bound for Istanbul, Turkey, a 28-day voyage. We hope old man Neptune did not cut any of his capers with the ocean waves to mar her enjoyment of the voyage, and that during her stay abroad, good health and happiness will be her constant attendants. — ALFRED L. DARROW, *Secretary*, 39 Garrison Road, Brookline, Mass. RACHEL P. SNOW, *Assistant Secretary*, Central P. O. Box 142, Istanbul, Turkey.

1883

Winthrop Alexander has moved from Washington, D. C., to 68 South Center Street, Wollaston.

The Class of 1883 celebrated their Fiftieth Anniversary by meeting together at Hyannisport, June 2, 3, and 4, at the Gables. The time was spent in talking over old times, playing golf, and taking motor rides around picturesque Cape Cod.

On the night of June 3, letters from the absent members of the Class were read, and also tabulated results obtained by the questionnaires sent out to the different members of the Class. After this, pictures were thrown on the screen, showing how the different members of the Class and Faculty looked in 1883, also pictures of the different members of the Class taken in 1923, also pictures showing how the men looked at other Class reunions.

Julien W. Vose brought along his moving picture projector and entertained us with pictures of what he had

seen in his various travels. He had so many of these that it was necessary to have a second session on the night of June 4.

The Class of '83 graduated 18 members. At the present time 12 are still living. The alumni list shows nine associate members, two non-associates, and 17 members not classified as above.

In order to get information for this occasion, 40 questionnaires were sent out and 27 replies came back. These include all 12 of the living graduates.

From the questionnaires sent out, the following information was tabulated: The average age at graduation was 21 years. The oldest graduate was 23½ years old. The others ranged from 20 to 21, the average age at entering was 17 years. The oldest man in the class at the present time is 72 years and six months old. The average age at marriage among the graduates was 30 years.

Vital Statistics Count of the Class

All the members of the class have been married at least once; several, twice; and one was divorced. The total number of children were 19, average per member one and a half. The total number of grandchildren 27, with an average of two and a quarter per member. The most prolific member of the class was Wesson, with six children and nine grandchildren. The average number of years for practicing their profession was 23¼ years. Three members never practiced their profession. The answers received showed 9 Republicans, one Mugwump, and no Democrats. The church affiliations showed 9 Unitarians, 2 Episcopalians, 2 Congregationalists, 1 Universalist, 1 Golfitarian, and 2 with no church affiliations.

The present occupations are as follows: 1 loafer, 1 certified public accountant, 1 assistant manager of department, 1 billboard fighter, 1 airport and real estate development, with a sideline of chickens, 1 consulting engineer, and 3 retired. One does nothing and one is Treasurer of a wall paper manufacturing concern.

Of the books written, one member has written check books and one wrote on accounting and economics. Not many inventions were made. However, one member invented refining methods for cottonseed oil. As a consequence of not many inventions, not many patents were taken out.

One member drinks malted milk, 2 drink 3.2, 2 drink anything they can get, 2 drink anything good, 2 take coffee with either tea or milk on the side, 1 drinks most anything, 1 takes water and more water, 1 drinks home brew only when he can't get anything better, 1 drinks home brew and wine only when it is guaranteed, 1 will drink but not make his home brew or wine, 1 doesn't drink home brew because he wants to live, one put a big NO after the question, and 1 makes wine and drinks it. The next important question is "Do you smoke?" One smokes any old thing, 1 says "try me" — yes to all, 1 prefers a pipe, 3 prefer cigarettes, 4 do not smoke, and 1 prefers cigars.

Associates: Now we come to our Associate Members. Of the 8 living, 7 sent in their questionnaires filled out. Their ages for entering Tech ranged from 16 to 21, and with the exception of Capen, who was with us three years, no one remained with us longer than one year. Two of our associates are 71 years of age. Their average at time of marriage was 25 years, which is younger, you notice, than the average age of the graduates.

Vital Statistics Count of the Associate Members: All of the associates have been married once and three twice. No divorces. The total number of children is 16 (average per person of 2¾) and the total number of grandchildren is 18, making an average of 2¼ per person. There is one prospective great grandchild. The most prolific associate member is Winthrop Alexander, with 4 children and 5 grandchildren. His close second is Vose, with 3 children and 5 grandchildren. One has practiced his profession for 50 years, one 5 years, and the rest not at all. The associates boast of 5 Republicans and 2 Democrats. Their Church affiliations show 1 Universalist, 2 Unitarians, 1 Presbyterian, and 2 Congregationalists.

Their present occupations are as follows: One has none, plans to live on charity in old age; one manufactures inks, mucilages, and so on; 1 is a Treasurer and expects to spend old age in Europe; 1 is a resident engineer of a transit company and is going to spend old age in Maine; one is an architect; one a Secretary of a bank, and one is retired. Of the books written, one has written on genealogy and travel, and one has written on the Hospitals of the 20th Century.

There are three associates who have invented the following things: 1, toggles for fastening leather to frames; 1, foot valves, filling nozzles, vivigauges, pumps for divers, divers helmets, and so on; and 1 has invented a piano key bed. Several have taken out patents.

Two drink anything, 1 light wines and cordials, 1 drinks anything good, 1 milk et als., 1 gin but preferably beer, if good, and 1 milk. Regarding the smoking of our associates, 5 of the 7 smoke. Two prefer pipes and three cigars.

On Monday, June 5, those present at Hyannisport adjourned by motor to Boston and vicinity, to be ready for the graduation exercises on June 6. At the jubilee dinner at Hyannisport the following persons were present: Mr. and Mrs. George R. Underwood, who had with them Mrs. Caxton (Kathryn Underwood), J. G. Eppendorff, Mr. and Mrs. Harvey S. Chase, Mr. and Mrs. Horace B. Gale, Harvey M. Mansfield, Julien W. Vose (with his grandson, Donald Vose), George H. Bryant and Mrs. Bryant, Mr. and Mrs. Edward F. Stevens, Mr. David Wesson and Mrs. Wesson, and Dr. Carlton S. Francis. George A. Smith and his daughter, Elizabeth, were with us, but had to leave for home before the dinner.

News from the Class: Alexander wrote us on May 4 of his inability to be present on June 6, saying he has been pretty well up against it. A letter just received from

1883 Continued

Dwight H. Boyden tells the sad news of the death of his father, following an appendicitis operation at Hot Springs, Va., on May 16. Boyden wrote your Secretary on March 3 and on April 18, saying he expected to be with us. A letter from Capen reported that he would be unable to join us at Hyannisport. Gustave W. Drach wrote from Bernard, Ohio, that he could not be with us. Henry W. Kingsbury wrote from Scranton, on May 12, that he is not fully recovered from an attack of illness he had in January, which will prevent his being with us. He sent best wishes to all members of the Class who remember him. On May 15 Mark Lawton wrote that he would not be able to come, but he hoped all the members of the Class who did come had a grand time, and he sent best wishes to everybody. Merryman wrote sending best wishes to everybody, as he was doubtful of his ability to attend. Scott wrote that it would be impossible for him to attend the reunion of Tech '83. He sent kindest regards to everybody. Wardwell wrote regretting the impossibility of his being with us, and sent best wishes to all of his Classmates.

On June 6, at Symphony Hall, the following members of the Class of '83 were present: Bryant, Capen, Chase, Gale, Eppendorff, Mansfield, Hutchings, Coolidge, Stevens, Underwood, Vose, and Wesson. With our mortar board caps and gowns, we made a very impressive array when we were led to the platform and were seated with the members of the Faculty and Corporation. One could not help remarking the contrast between the small body of remaining members of the Class of '83 and the 600 or more men who received their degrees with the Class of '33. After the graduating exercises, the members of the Class of '83, with their wives, were invited to the home of President Compton, where we were most cordially entertained by President and Mrs. Compton at a delightful luncheon. There was much regret felt that we could not have a 50th Anniversary oftener.

Horace Gale, the Class President, has asked the Secretary, by request of some classmates, to send the following item to the class notes: It was agreed by all that the youthful looks of the men belied their statistical age of 71, computed by the Secretary. Horace Gale remarked that the statistics showed there was only one loafer in the Class — all the rest were keeping young by keeping at work, for pleasure or profit or both. . . . — DAVID WESSON, Acting Secretary, 111 South Mountain Avenue, Montclair, N. J.

1885

Henry Sweet passed away July 28 after a period of ill health which had prevented him from active business for several years. Although he entered the Institute with the Class of '81, he had become identified with us because of his social relations with several members of the class and about ten years ago he was made an affiliating member. On two occasions the members of the class have been his guests at his country place in Dover

and on another occasion we were entertained at dinner at his beautiful home in Boston. He was born in Lancaster, N. H., August 4, 1860, the son of Hartford and Fannie Elizabeth Nettleton Sweet. He attended the Lancaster Academy and for a time was a student at M. I. T. He entered Hornblower and Weeks in 1901 and was admitted to the firm in 1909. A few years ago he retired from active business because of failing health.

Mr. Sweet had been a member of the Boston Real Estate Exchange for the past 30 years, and was a director of the New River Company. As a member of the Massachusetts naval militia for nine years, he held the rank of ensign, lieutenant, and ordnance officer. — He was unmarried and made his home at 68 Beacon Street, Back Bay.

The annual class dinner was held at the Hotel Kenmore, May 15. Those present were: Baker, Dewson, Fiske, Hildreth, Litchfield, Little, Morss, Parsons, Plaisted, Pratt, Steele, Sise, and Worthington.

The following changes of address have been received: A. W. Allen, 3097 Salisbury Road, Ensley, Ala.; Nat G. Robertson, Glenverly, Pa.; Charles H. Bartlett, 9 Garden Street, Milford, N. H. On the death of Charlie Pearce '86, the Secretary moved from Twin Ash Farm, Medfield, Mass., to 165 Winchester Street, Brookline, telephone, Aspinwall 2956. — ISAAC W. LITCHFIELD, Secretary, 165 Winchester Street, Brookline, Mass.

1887

The Secretary was in receipt of a letter from our Class Treasurer, George Otis Draper, which arrived just too late for publication in *The Technology Review*, describing conditions as he saw them at Long Beach, Calif., at the time of the earthquake. George's letters are always most interesting and, as this is the only bit of class news the Secretary has to offer, he is submitting it herewith.

"In a purely scientific spirit, I will report that as a close observer of the recent earthquake at Long Beach and vicinity, the lesson to be learned is disuse of poor mortar, cornices, ornamental doo-dads, and Class B construction. I hear that masons have often failed to fill in with any mortar at all between any risers where neglect would not be noticed. Thirty-three school buildings, mostly modern in construction, are badly damaged, and it is lucky that the quake came after school hours. Wooden buildings, stucco, and concrete stood up well; the casualties came mostly from falling bricks.

"Frightened citizens are living in tents and moving away from their homes; they might go into the Middle West, where they can have floods and tornadoes. Even in Vermont they had a shower which occasioned \$40,000,000 damage a few years ago. Life is uncertain.

"Made my ninth cross-country auto drive without much physical injury, though I owe a railroad for three stout posts and drove the Apache Trail at night with a generator dead and a battery that would not even blow the horn. A Samari-

tan got me out of a ditch at 12 G. M. Trade Unions are holding up the moving picture business, even as they ruin the theatre trade in New York. I retired from the largest granite company in New England rather than submit to their tyranny, and hoped the depression might undermine their sway. It seems to be the fashion to take everything on the chin and grin, but fashions have a habit of changing every little while.

"I will make a modest prophecy that business will get much better in the next few months, and then some fool politicians will swat it in the mid-riff with the threat or possibility of a lower tariff. Am well and having a fine time; Hollywood is not too far away." — NATHANIEL T. VERY, Secretary, 66 Orne Street, Salem, Mass.

1888

We had the pleasure of a visit from Samuel G. Stephens at our Rockport Reunion on Saturday, June 10. As you all remember, he was instructor in mechanical engineering during our early years at Technology. Mr. Stephens is living in Lowell, Mass., and is in good health and spirits at the age of 76 years.

The Reunion lasted from June 9 to 12. It was undoubtedly the most interesting and best reunion ever held by the class. This was due to the fact that classmates came from greater distances, the weather was absolutely perfect, every activity planned was carried out completely, and as an added attraction, entirely unexpected, Commodore Walter K. Shaw sent his noted racing yacht *Andiamo* for the entertainment of his classmates although he was detained at home by illness.

Nine cars owned by members and carrying them with their baggage and athletic equipment, converged on Straitsmouth Inn, Rockport, and arrived within ten minutes of high noon on Friday, June 9. The principal motorcade started from the University Club, Boston, at 9:30 o'clock, with other cars leaving Concord and Lawrence at about the same time. By accident Besler's and Thompson's cars toured the narrow streets of Marblehead before joining the rest of us on the famous North Shore Drive, but no time was lost and much scenic beauty added to the trip. After luncheon the crowd was about equally divided between the Rockport Country Club and Shaw's *Andiamo*, as she demonstrated how she defeated the cup defenders in 1931. With her lee rail two feet under water and her 20-ton lead keel showing on the other side, she dashed out into the open ocean at high speed. We all marveled at her "streamlined" mast, designed by Walter, which rose 106 feet above her keel. Four trips out into the broad Atlantic were necessary to give every man a chance to enjoy a bit of life on the bounding main aboard a big racing boat. These were made on Friday afternoon, twice on Saturday, and Sunday morning.

The first event of note on Saturday morning was the bathing party, before breakfast, participated in by Frank Ladd, long-distance champion of the reunion

1888 Continued

and football hero, and the Secretary. The water was fine, about 55° F. The rest of the fellows do not know what they missed. Sailing and golf occupied the time up to one o'clock when the motorcade got under way for Folly Cove, where the big stunt clambake took place. One bushel of tender Essex clams was devoured with plenty of bouillon and drawn butter, as well as all kinds of sandwiches, pie, coffee, doughnuts and cheeses, also foaming liquid from amber-colored bottles furnished through the kindness of Webster and Besler. Saturday afternoon included sailing, motoring, hiking, and reminiscing. At seven o'clock a large group photograph was taken on the front steps of the hotel just before sitting down to our grand reunion banquet. Lobster, with breast of duckling and all the fixings, was served with more amber fluid till all hunger and thirst disappeared. Then we adjourned to the spacious living room where over three and a half hours were spent in speech making, story telling, and letter reading. The principal speech of the evening was made by Ned Webster, Chairman of the Executive Committee of the Corporation, outlining for us the details of executive history since the days of President Maclaurin with special reference to the new organization of the Faculty under President Compton, and present conditions at Technology. The Secretary read 32 letters from absent classmates giving news about themselves and the reasons why they could not be present. Talks and stories were made and told by Besler, whose two sons constructed and demonstrated the first steam-powered airplane, as related previously in *The Review*; Ladd, winner of the long-distance cup (to be presented in 1938) who is now in the gold mining business near Denver; Merrell, who presented two souvenirs to each classmate of products from his chemical works in Cincinnati; and Eastman, our newly discovered story-telling genius. It was unanimously voted that Walter Shaw be sent a letter of appreciation for his kindness in sending his racing yacht for our entertainment, although he was unable to attend, and he was given the long M. I. T. cheer ending with three Shaws.

The golfers found the course of the Rockport Country Club to be in perfect condition as far as fairways and greens were concerned, but woe be to him who allowed his ball to stray into the rough, for it was heavy and tough. However, we enjoyed the closest competition in the history of the class. The leading two-some, consisting of Webster and Besler, played 36 holes, each one winning 11 holes and halving the remaining 14. The "following" four-some, consisting of Moore and Thompson on one side and Horn and Collins on the other, played 54 holes, equally distributed over three days, and after the last putt was made, it was found that each side had made exactly the same number of points, counting best ball and worst ball, so that they were exactly where they were before they started out on Friday afternoon. Frank

Moore successfully defended his title of class golf champion at medal play, as shown by the total strokes made for the 54 holes. B.R.T. was lucky to obtain the runner-up position.

There were 25 present at the Reunion as follows: Bates, Besler, Bird, Bridges, Buttolph, Cheney, Cole, Collins, Conner, Eastman, Ellis, Faunce, Fuller, Hamblet, Horn, Ladd, Mead, Merrell, Moore, Reynolds, Sawyer, Sjoström, Smith (E. M.), Thompson, and Webster. The 32 letters read by the Secretary after the big dinner on Saturday evening were from: Shaw, Quigley, Stone, Sweetland, Williams, Roper, Nickerson, Wood, Muhlenberg, Neiler, Nichols, Ray, Victor, Holton, Jordan, Roberts, Faxon, Perkins, Foque, Windette, Lee, Dearborn, Stetson, Holman, Parker, Means, Nutter, Adams, Daniel, Cobb, Dean, Scales, and Mrs. Keough. A letter was also received from John Runkle in Cambridge, England, too late to read at the reunion.

The reunion was voted perfect by everyone present, but we are all looking forward to our 50th in 1938, when we expect a bigger and better time with twice as many in attendance.

Within a month after giving 25 of his classmates the great pleasure of sailing on his 50-foot racing yacht *Andiamo* on three days during our Forty-Fifth Reunion at Rockport, Walter K. Shaw passed away. He died on July 6 at his home on Nashawtuc Road in Concord, and was buried in Sleepy Hollow Cemetery. Walter was one of the most energetic and successful men in our class along many lines. He was born in Abington, Mass., in 1868. He learned the Cotton Manufacturing business at the Tremont and Suffolk Mills in Lowell after graduating from Technology in 1888. Then he entered the office of E. A. Shaw and Company, cotton merchants, in 1889 and became sole owner in 1897, incorporating in 1920. He was very successful in his business and left his entire estate, valued at over one million dollars, to his son, Walter K. Shaw, Jr. He maintained his interest in athletics, playing in tennis tournaments and on badminton teams after graduating from baseball, until he had a 30-foot fall while erecting a radio aerial, causing him to walk with a cane for many months, and thereafter he devoted his summers to yacht racing with summer homes at Marblehead and Seal Harbor, Maine. For eight years he sailed his *Andiamo* in the big club cruises down to Bar Harbor and won as many as 17 cups in a single season. In one year or another he won all of the famous cups over such cup defenders as *Weetamoo* and *Vanitie* except the Astor Cup and this spring he designed and had made a silk balloon spinnaker, costing more than \$2,000, in order to attempt to win the last coveted cup, but fate ordered otherwise.

Shaw married Miss Mary Groom Hutchins of Concord in 1897, who died about a year ago. They had two sons, Walter K., Jr., who succeeds to his father's business, and Gordon H., who died while a student at Harvard about six years ago.

He was a member of the University Club, New York Yacht Club, Eastern Yacht Club, Seal Harbor Yacht Club, Concord Country Club, and Salem Country Club. He was formerly Chairman of the Concord Red Cross and Treasurer of the town. His death leaves a vacancy in our class which cannot be filled. His character was described in the *Boston Transcript* of July 18: "The traits by which all of his friends will love most to remember Walter K. Shaw were his simplicity, his genuine honest nature, his high standard and scorn of anything approaching untruth. His ability to throw himself wholeheartedly into the thing of the moment was unique. He lived intensely and vividly. Whatever he was doing he was not satisfied unless he brought to it his best and his most intense effort."

"Few were privileged to know him well, but to those who did know him, his friendship was a constant inspiration, a rare and valued gift; and his death is an irreparable loss. His courage in the face of bitter news, his keen appreciation of the gift of life, and his high integrity are a lasting inspiration and memory."
—BERTRAND R. T. COLLINS, *Secretary*,
Chebeague Island, Maine.

1889

The Secretary received word of the death of Willard G. Bixby at Mineola, N. Y., but has not received any particulars. The following inadequate notice was printed in the *Boston Transcript*: "Willard G. Bixby — at Mineola, N. Y.; aged 65; retired shoe polish manufacturer and owner of one of the largest experimental nut farms in the world at Baldwin, N. Y.; native of Salem and a former President of the Northern Nut Growers Association. In 1929 Mr. Bixby made 7,500 crosses of nut varieties, turning half of them over to the United States Department of Agriculture for further experimentation. He owned a hybrid pecan and hickory tree which bears nuts two-and-a-half inches in diameter. The nuts of another hickory tree can be crushed in the hand and a black walnut has kernels like a chestnut."

Word has also been received of the death of Fred Parker Ham on August 18, at 220 School Street, Somerville, Mass. The Secretary has no particulars as yet.

Henry Howard's daughter, Catherine, was married to Charles Townsend at Newport, R. I., on August 12.

The *Boston Herald* carried on May 30 the following editorial regarding Hobbs' work as President of the National Association of Wool Manufacturers: "During its 68 years, the National Association of Wool Manufacturers has been well served by its presidents. Of the 12, six have come from Boston. Longest in service was the late William Whitman of the Arlington mills, whose two administrations covered 14 years. Now, after a service second in length only to that of his father-in-law, Franklin W. Hobbs, also of the Arlington mills, is quitting the office he has occupied for eight years."

"He is resigning because he considers it for the 'best interests of the association' during the two years in which the indus-

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trial recovery act will be in effect that the Association's President shall have the only two qualifications which Mr. Hobbs does not possess. He should be able to give his full time to the office. He should have no direct connection with the industry. And we might add, he should not be expected to serve without salary.

"Like his predecessors, Mr. Hobbs has been occupied with numerous technical problems of which the public hears little and with the general questions of which the public hears a great deal, the tariff, wages, labor conditions, and the making and marketing of fabrics.

"All these will doubtless require attention in varying degrees by the new president, but the recovery law will greatly enlarge the demands on his time. With the probability of a unification of conditions north and south, it is desirable that minute attention shall be given to every detail of the pending adjustment by the association executive. Mr. Hobbs has been an able administrator." — WALTER H. KILHAM, *Secretary*, 126 Newbury Street, Boston, Mass.

1890

A card was received early in August from Harry Goodwin, from Valley Ranch, in New Mexico, where he with Mrs. Goodwin and his son are having a delightful time horseback riding.

From the press, we hear that Charlie Hayden, Director of the Rock Island Railroad, says everything is going to be all right, and he speaks with authority, as Chairman of the Board, reporting in fixing up the bankruptcy muddle. Charlie's office associates report that they never have seen him in the customers' room, and that he has never kept a stock ticker in his office. Charlie is still a bachelor, and enjoys dancing, yachting, and bridge in his off hours.

We regret to report the death of Waldo A. Martin, of Milton, Mass., on July 19. He had long been employed in the United States Customs Service. He served several years with the Metropolitan Sewer Commission before going to the Customs Service. Waldo was with us in the Class of '90 for three years. He was a member of the Men's Club of the Unitarian Church at Dorchester, Mass.

Henry M. Waite, one-time City Manager of Dayton, Ohio, has been appointed Deputy Administrator of Public Works at Washington. Chic served as a Colonel with the A.E.F. railroads in Germany. He just finished building Cincinnati's 40 million-dollar Union Terminal. He will constitute Mr. Ickes' brain trust on "the high price of putty and the low price of sand."

William Z. Ripley returned to the United States from Holland on August 12. The newspaper account of his arrival follows: "Considerably improved but still very weak, William Z. Ripley, professor emeritus of political economy at Harvard University, has returned to his home at 38 Bracebridge Road, Newton Centre, to recuperate from a nervous breakdown suffered 14 months ago in Holland.

"When the 64-year-old economist arrived in New York on the Holland-American liner *Statendam* on Friday, Mrs. Ripley said he was 'better, but still very ill.' He is now under the care of a nurse, and it will probably be a year before he is able to resume the writing career which established him as an outstanding authority on economics, finance, and railroad management. The breakdown came in Leeuwarden, Holland, where he had been in a hospital until a few weeks ago. It was caused by the strain of numerous speaking engagements and a strenuous program of magazine and book writing. In 1926 he was similarly affected."

Charles W. Sherman early this year presented a paper before the New England Water Works' Association, "New England's Classic Contribution to Hydraulic Science." — We have recently been advised of the death of James Edgar Borden, of Portsmouth, N. H., on January 20, 1933. Edgar was only with us our freshman year. — GEORGE L. GILMORE, *Secretary*, 57 Hancock Street, Lexington, Mass.

1891

The Rev. Thomas H. Yardley died June 24 and the following is from the *Boston Transcript*: "Rev. Thomas Henry Yardley — At Philadelphia, aged 64; for 17 years prior to his retirement in 1930 rector of St. Timothy Church, Catonsville, Md., and at one time also served as Secretary of the Clerical Union in Baltimore. A native of Middletown, Conn., served at several churches in Massachusetts, Rhode Island, and Connecticut before going to Maryland." Our last address for Yardley was Newport, R. I. He was listed as having taken the course in architecture and later took a degree of M.A.

Miss Mary F. Thompson died on February 25, at Assinippi, Mass. She was listed in our Class but we have no further information. — Elisha Lee, Vice-President of the Pennsylvania Railroad, died recently. He is listed in our class book but graduated with the Class of 1892. An account of his life appears in the '92 class notes.

The following new addresses have come in: Dr. Margaret E. Maltby, 501 West 113th Street, New York City; Arthur Howland, 86 Buckingham Street, Cambridge, Mass. The Secretary's home address after October 1 will be Longwood Towers, Brookline, Mass.

A class outing was held at the Belmont Spring Country Club, Belmont, Mass., on June 14. The weather was fine, although a little cool for those sitting in the open. The attendance was the largest for any outing of recent years, except the five-year reunions. There were 31 in all, 18 for luncheon and 24 for dinner. The following attended: Ambrose, Alley, Bowen, Blanchard, H. C. Bradley, H. G. Bradlee, Brown, Capen, H. I. Cole, Colburn, Dana, Douglass, Fiske, Forbes, Fuller, G. A. Holmes, F. C. Holmes, Howland, Hatch, Howard, Kimball, Tom Keene, Punchard, Reed, Rogers, Ryder, Smith, Wilder, White, Wason, Young.

At the dinner the Secretary read a telegram from George Hooper and regret cards from a number who were unable to attend. Arthur Mansfield hoped to be present but was prevented. The Secretary talked with Charlie Aiken at Franklin, N. H., the night before, but Charlie was opening up his summer place and could not make it. Francis Holmes drove from Plymouth, picked up Barney Capen on the way, and took him back. Barney was active on the telephone as usual and checked up many of those around Boston, which undoubtedly helped to swell the attendance. Gorham Dana spoke of the summer colony in New Hampshire which included himself, Douglass, Howard, Powers of Springfield, Mass., and Charlie Aiken, all fairly near together, and open house to all '91 men. How about a summer outing at Sunapee or Webster Lake?

The golfing contingent seems to grow smaller each year. Only six played and the scores disappeared. Tom Keene had no difficulty in breaking 100 and easily took care of the best ball of Blanchard and the Secretary, or so it seemed, without definite figures to prove anything (the Secretary kept a "partial" score). George Holmes, Will Fuller, and Will Wilder were the other players.

It seemed to be generally agreed that a day outing in warm weather was preferable to a dinner in the winter. Everyone seemed in pretty good shape, considering our years of service, but if a prize were offered for youthful appearance and happy countenance, it would undoubtedly go to our jovial friend, William Channing Brown. It was nice to see Leonard Wason and we wonder whether he can kick as high as he used to when in Tech (he was a champion at that sport, which seems to have gone into the discard of late years). We missed Charlie Garrison who is now living in Long Beach, Calif. Arthur Alley has been East for some time on account of the serious illness of his brother. Arthur was presented with a birthday cake (actually an apple pie). Leave it to Barney to check up on all the birthdays.

Barney Capen has been making the most of the summer, assisted by his many friends. One of his escapades was an immersion in the salt water; he walked in part way and his friends "poked" him under. He wore his wife's red bathing suit and it is to be regretted that no movies were taken of this important event. Arthur Alley and his sister called on Barney, and Howard Forbes drove Barney to the Third Cliff (Scituate), where Arthur has a cottage. Hartley and Mrs. White were recent callers.

George Hooper writes Barney from San Ysidro Ranch, Santa Barbara, Calif., "Your birthday greeting was forwarded to me here, we having driven up on my anniversary, to begin a stay here of six weeks — possibly longer, depending upon the weather and the family health and, not the least important, the success of Mr. Roosevelt's plans for getting the country again in step. I probably have written you from here in past years, as not

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a summer has passed since our California life began that we have not spent more or less time here. The two Charlies — Garrison and Aiken — are both familiar with the place and its charm. I enclose a circular which fairly and moderately represents the Ranch. Oddly enough it was started by a Boston man, Mr. Harleigh Johnston, who for many years was New England Agent of the Allen Line of transatlantic steamers. A breakdown due to overwork sent him here. One of the cottages is named, 'Buglight', which will be recognized by those familiar with Boston Harbor.

"Santa Barbara is as beautiful as usual, but like all other summer resorts, is suffering from the results of the universal financial upset. There is less than half of the usual number of summer visitors and tourists and the place seems deserted. This has some advantage for those who are here, since there are many less autos on the highways driven by 'flaming youth', with resulting ease of mind for us elders who wish to arrive undamaged at our destination.

"There is one serious drawback here this summer in the condition of the beaches, the action of wind and wave having materially reduced the beach area. This coast extends generally east and west and the tidal currents run strongly along the shore. A breakwater built at Santa Barbara to form a yacht harbor is blamed for the damage that has been done for some miles to the east. Something I suppose will be done, as a few more years of the existing erosion will remove practically all of the bathing beaches for a long distance east of Santa Barbara and that would be a serious detriment to this locality.

"I do not remember if I have written you that I discovered a bell made by Henry W. Hooper of Boston in one of the bell towers of the Mission here. I looked up the old chap and found him to be an uncle of my father and that he conducted a bell foundry and nautical instrument shop in Boston for many years. I think, in fact, that the enterprise which he started is yet operating. This bell was undamaged by the 1925 earthquake, when so many of the Mission bells were thrown to the ground and cracked, and is now in use. I have been fortunate enough to secure a photo of it in place, showing the name and date.

"Speaking of bells, I saw this spring at the old Carmel Mission, near Monterey, two bells stated to have been cast by the Russians during the latter's occupation of Alaska. These are beautiful specimens of bell casting, finely proportioned, excellent surface, and clear tone. They are far superior to the bells made in Spain now hanging in many of the Missions, which have cracked from casting stresses accentuated by the blows of the tongues in use. Some of them have sprung open over an inch where cracked, showing also an apparent overheating of the metal. At Carmel, the smaller of the Russian bells is hung on a crude gallows frame at the Mission entrance and used as a door bell, the other being in the tower."

Forrest Shattuck writes that they spent the winter at their desert home, India, Calif.

Charley Garrison writes frequently about his various trips, but it is hard to keep track of him. He talks about a trip to San Francisco, Redwood Highway, Grants Pass, Crater Lake, Dales, Oregon to Portland, Astoria, and so on. In the next letter the trip is extended to cover Estes Park, Colorado, by way of Arizona, and so on. What a wonderful experience to have the time and opportunity to see so much of the far western country.

Anna Gove writes of a visit to another classmate, Dixie Lee Bryant, at Asheville, N. C. — Gorham Dana spent the summer at his new home at Lake Sunapee, N. H. He writes: "The third annual dinner of the M. I. T. '91 Sunapee Association was held at Frank Howard's summer cottage at Hastings Landing, June 23. The old crowd was all there: Mr. and Mrs. Aiken, Mr. and Mrs. Dana, Walter Douglass and his niece, Miss Chase, and the genial host, Howard, with his twin sons, their wives, and grandchildren which he 'records by the dozens'. He has a beautiful spot — a pine grove with a sandy beach, tennis court, and all water sports imaginable. On a big raft well out from the shore, the grandchildren performed great stunts in diving from 11 a. m. till dinner time. Then aquaplaning behind a fast motor boat, the youngsters jumped off just before reaching the finish line. A very delicious dinner was served with the aid of two of the diving granddaughters. Then we watched an exciting tennis match in which Miss Chase took a successful part. This was followed by more bathing, which seems to be almost a continuous operation in hot weather. The new member of the Association, Philip Powers, could not be there but is in line for future reunions. A grand day and a grand time. Good fellows should get together."

Those at the party wrote a round robin to Barney: "The M. I. T. Lake Sunapee Contingent of the great Class of '91 sends greetings. Wish you were here. We have been talking about you. Did your ears burn? Charlie Aiken has been telling us *more true* stories about Australia. We have been swimming and just finished dinner and are sitting down to reminisce. We have recalled Ezra Gifford's clambake at Cotuit and Charlie has agreed to furnish some left-handed clams for the next outing. — Frank Howard."

"Charlie Aiken is raising some left-handed clams built on latest approved stream lines and is preparing to race them when they mature, but he cannot explain how a right-handed clam can compete with a left-handed one. A fine day and a fine crowd, some 15 or 20. Howard's grandchildren all waiting to see Charlie's side bill gougers that he promised to bring. — Gorham Dana."

"We are having a perfect M. I. T. '91 day here and send you our best wishes and kindest regards. — W. B. Douglass." — "This is a great day and a great place. Howard and Dana and Douglass are in great form. Howard had a sign at the

road leading into his estate but since we were last over here he had the sign removed although he denies all knowledge of the removal. At any rate we watched for the sign and so, of course, overshot the mark and brought up some miles beyond our objective. However, we were able to turn our car around and finally found our way in. Unfortunately, we spilled out all the side bill gougers in the turning about stunt and so had to disappoint the grandchildren who, by the way, are certainly worth bragging about. We called on Dana last week. He has a fine place too. The same day we called on Howard and Douglass, whose place is more wonderful than ever. — Charlie Aiken."

Robert Ball wrote Barney sometime ago and part of his letter is as follows: "I see one of my old friends of Chicago days has passed on. I never knew Harry Wait well while we were at Tech (we were too far separated alphabetically perhaps) but we saw much of each other in Chicago, where his delightful family resided. His father fought in the war for the North and he used to regale us with stories of those stirring times, many of which I still remember. Harry made a specialty of steam turbine design in which he became very proficient. I have not seen him for some years and it is sad to think that we will not meet again on this side. It is depressing to find the 'd' mark opposite so many names which, in one way or another, recall such happy days.

"Yes, I have been in West Virginia though not to stay any length of time. I spent some weeks in the Shenandoah Valley in Virginia, which is a lovely spot where they grow the best apples in the world, and from there I made excursions into West Virginia. I have never been to Charleston. I hope Mrs. Capen will enjoy her stay. My wife's mother is now 95 and is very alert and takes in all that is going on and reads the papers in a thorough manner."

Willard Roots writes Barney: "My daughter, Francis Mary, graduated from Ithaca College, Ithaca, N. Y., June 9, and my son, Willard Herbert, from Hobart College, Geneva, N. Y., June 12, so you see I could not be with you June 14. We drove over for commencements and brought home the two bachelors of science. If ever you motor this way, drop in. We are at 140 Central Street, Mansfield, on Route 140."

Harry Bradley wrote Barney an interesting letter about his trip to Europe on the *George Washington* in the summer of 1931. It seems that there was two and one-half million in gold aboard and when part way across, apparently orders were given to speed up and change the ship's course, so as to arrive at Portsmouth on Wednesday instead of Thursday, thereby saving a day's interest, and possibly affecting the scramble with France for gold. When about one-third of the way across, Bradley writes: "But at this point something happened. We were shifted to route A, the northern route, which saved 70 miles, that is, four hours, and the boat was speeded up again. You will

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notice that the last part of the voyage was at 18.5 knots, or one sea mile an hour faster than the first part. Shifting to the northern route meant a constant fog, which by all the rules of the sea should have meant a reduced speed instead of the increased speed. Running at forced draft up to the ultimate capacity of the engines (and I really think beyond the limit of safety) was like whipping an old horse in an endeavor to get back the speed of her youth. There was a constant vibration so noticeable as to be painful, day and night, from stem to stern, from the highest deck to the lowest. Even when standing on the deck, one felt the vibration. It was much more when lying in one's bunk, which shook so much that sleep was almost impossible. Indeed, on my first night after landing on the other side, I woke up clutching with both hands the edge of the bed to avoid being shaken off on to the floor. It was a week before the sensation died down appreciably."

This trip not only was very uncomfortable for the passengers, but apparently damaged the boat beyond repair as she was taken out of service soon after that. — HENRY A. FISKE, *Secretary*, Grinnell Company, Inc., 260 West Exchange Street, Providence, R. I. BARNARD CAPEN, *Assistant Secretary*, The Early Convalescent Home, Cohasset, Mass.

1892

Under date of July 10 I received the following note from Harry D. Shute written at the Mediterraneo Hotel, Palma De Mallorca: "Am enclosing a clipping from the Paris N. Y. *Herald* of July 5 about our old friend and classmate, Lish Lee. It will be of interest to the class. Am here for the summer. Fine swimming, boating, and so on." The clipping reads in part: "Mrs. Angie Latimer Lee, 56, wife of Elisha Lee, Philadelphia railroad official, died yesterday at 11 a.m. at the American Hospital after a brief illness. She was traveling with her son when she was taken ill. . . . Mr. Lee is Chairman of the National Conference Commission on negotiations between railways and railway brotherhoods."

And only about a month later came the news of the sudden death of Lee on August 6. The following notice appearing in the Boston *Herald* is all too short to cover the activities of his busy life: "Elisha Lee, Vice-President of the Pennsylvania Railroad, collapsed and died tonight after alighting from an Albany train at 96th Street. He was 62 years old."

"Lee, who was a native of Chicago, was crossing the railroad tracks with his physician when he was stricken. He died before the arrival of an ambulance. His home was at Chestnut and 22d Streets, Philadelphia."

"Lee began his railroad career in 1892 as a rodman on the Tyrone division of the Pennsylvania. He was promoted successively to assistant supervisor, supervisor, assistant engineer in charge of maintenance, and assistant general manager of lines east of Pittsburgh and Erie."

"In 1917 he became general manager and acting Vice-President. He was appointed Vice-President in charge of operations in November, 1924. He served as chairman of the conference commission of managers of eastern railroads from 1912 to 1914, and afterward was chairman of a conference committee on negotiations between railroads and railroad brotherhoods. His wife died in Paris on July 5 while on a brief vacation."

Other news of the class is a minus quantity. — JOHN W. HALL, *Secretary*, 8 Hillside Street, Roxbury, Mass.

1895

A question has been raised by some of our readers as to the curtailment of the class notes, even under the enforced economy program at the present time. Your Secretary can assure you that the Review Editors consider this portion of the publication one of the departments most interesting to alumni, and have never questioned the amount of news '95 has offered for publication. Your Secretary has never been swamped with too much news from the members of the class.

While L. K. Yoder was sojourning about New York City in June, the '95 men in New York held a luncheon on June 22 at the Bankers' Club, which was attended by Azel Ames, Fred Cutter, Herbert E. Davis (of Bermuda), John Gardiner, Edward Huxley, George Nichols, Frank Park. Dick Sheridan, Gerard Swope, Tom Wiggin, Johnny Wolfe, and L. K. Yoder. Cutter and Gardiner are always on the job to welcome any newcomer, and the delightful reception extended will always be remembered. When in New York, get in touch with the boys, they will make you feel at home. By good luck, Davis just arrived from his home in Bermuda and everyone was delighted to see him. He looks just as young as ever.

Ralph R. Lawrence has changed his address to 66 Stone Road, Belmont, Mass. Albert Dunbar has been found at 8 Cushing Avenue, Dorchester, Mass.

Louis K. Rourke passed away on Wednesday, August 23, at his home, 90 Moraine Street, Jamaica Plain, Boston. Louis was prominently identified with Boston municipal life and associated with various boards and commissions, and most recently superintendent of school building construction in the City of Boston. He had also been commissioner of public works as well as a member of the school house commission, and perhaps his greatest achievement was his connection with the building of the Isthmian canal, where he was one of the engineers in the employ of the commission that constructed this waterway. Rourke was born in Abington, November 23, 1873, and graduated from Technology with the Class of 1895, as a civil engineer.

When Boston sought a man who could run the street department independently, Louis Rourke was recommended as having all the qualifications required, and the position was offered to him. He returned from Panama to New England and began a work quite as exacting in its

way as that encountered in Panama. He was a member of the American Society of Civil Engineers and the Boston Society of Civil Engineers, and belonged to the Elks and the Knights of Columbus.

When Rourke gave up his post as engineer with the canal commission, Colonel George W. Goethals, U.S.A., the chief engineer of the canal, paid him a high tribute, saying: "You cannot say too much to the people of Boston about Louis Rourke. He is an exceptionally able man. What is Boston's gain is our loss, and we are going to feel it at Panama rather severely. He is very efficient and able. He knows men and knows how to handle them. He is a good deal of a diplomat. I want to say that any hint of graft would be like waving a red flag before a bull. He is absolutely honest and fearless. Let him have his way and the people of Boston will not be disappointed."

One hears much about unemployment and reemployment. At our age and under the passing conditions of business, there are a number of '95 men who have graduated from the employed to the unemployed class, and your Secretary is now included. Nevertheless, it affords a golden opportunity to see the world as you never saw it before, if you can, whether on foot or in automobile, by visiting your classmates one by one and sharing the joys (?) of a new existence.

The life work of your Secretary has been to assist others in developing fortunes, and he is still hoping for another such opportunity. — LUTHER K. YODER, *Secretary*, 69 Pleasant Street, Ayer, Mass. JOHN H. GARDINER, *Assistant Secretary*, Graybar Electric Company, 420 Lexington Avenue, New York, N. Y.

1896

The Secretary had a call from Bert Spahr on June 13. He had his son with him and reported that his main occupation now was running a dairy farm in the Berkshires where he had 25 or 30 Guernseys. On the side he dabbles in painting. He appeared to be very well and his life was happy. — On June 8 Ed Barker paid a call but had no special news. Con Young and Abby turned up on July 1 but unfortunately the Secretary was absent and missed them, so that further details of Con's fishing experiences in Florida last winter were not obtained.

Jacobs took a summer off from his duties at the University of Vermont and made an extended visit to the Chicago Fair in June. Later in the summer he and Mrs. Jacobs made their long-expected trip to Quebec and points east, taking in Lake St. John, the Saguenay, the River St. Lawrence, and the Gaspé Peninsula, where he made geological studies in addition to viewing the scenery. During the remainder of the summer he did some local geologizing in the Vermont mountains, played golf, and otherwise disported himself, including a little job of lifting which gave him a crick in the back. — John Rockwell made his customary southern trip in August to visit his old stamping ground in Tennessee.

1896 Continued

He also took in Atlanta and made the journey as pleasant as possible by making use of steamers both ways to Savannah.

In connection with the geological congress in Washington in July, much interest was aroused by the paper of Dr. A. W. Grabau, who has been for many years and still is Professor of geology at the University in Peiping, China. He stated that the earth is due for another flood if the past behavior of the oceans continues in the future. Since as far back as 500 million years ago, the level of the sea has periodically risen and fallen in a regular rhythm. The cause may be linked up with the activity of radio active substances like radium in the interior of the earth. All evidence indicates that rise and fall of sea level every few million years is the cause of the floods and not the sinking of the continents.

Classmates will be interested to know that G. T. Rundlett, son of Frederick T. Rundlett, of 66 Maple Street, Cambridge, was awarded one of the M. I. T. scholarships to Cambridge boys. He graduated from the Cambridge Latin School in June.

Bradley Stoughton is co-author with E. S. Greiner and J. S. Marsh of a new book entitled "The Alloys of Iron and Silicon," published by the McGraw-Hill Book Company.

Rear Admiral R. E. Bakenhus spent his vacation at Falmouth, Mass., and it is understood that he fraternized more or less with Buster Crosby at Osterville. During the early part of the summer he visited the Chicago Fair and read a paper before the American Society of Civil Engineers on the subject of "A Century of Progress in Methods of Construction of National Defense Facilities on Water." Later on July 20 he went on the air and delivered a masterly talk for the American Legion on the subject of "The United States Navy and Recovery." He gave a brief résumé of U.S. naval history and ably demonstrated the need of an up-to-date navy.

It is with much regret that the Secretary reports the passing of Major Robert S. Hardy, who died in Los Angeles, May 2, 1933. An obituary will appear in a later issue.

Myron Fuller sends the latest report that during the summer he was laid up for a month with an attack of rheumatism so that he was unable to drive his automobile. After reading until he was sick of the sight of a book he tried, as a last resort, a trip to Honduras and Nicaragua on a banana steamer, with the aim of sweating it off. The result was most successful.

Incidentally, he has been put on the Council of the Section of Hydrology (ground-water) of the American Geophysical Union. He is now at his camp in North Easton, figuring out where he and Mrs. Fuller will travel next. A further installment of the Fullers' trip to South America will appear next month.

—CHARLES E. LOCKE, *Secretary*, Room 8-109, M. I. T., Cambridge, Mass. JOHN A. ROCKWELL, *Assistant Secretary*, 24 Garden Street, Cambridge, Mass.

1898

The committee which undertook to plan arrangements for our Thirty-Fifth Reunion had doubts whether it was wise to try to hold it this depression year, but they canvassed the class as far as they could and reached the decision to go ahead. However, they omitted all the expensive stunts and simply selected a meeting place to which the members could come for three days at a very moderate expense.

The result fully proved the wisdom of the committee, which consisted of E. R. Barker; for the sake of looks there were other names, Dawes, Fenner, Peavey, and Sargent signed the notices. When Allston Sargent arrived, he made it known to all in hearing that the committee were getting their accommodations free. This bluster would not be recorded here if Allston had had any intention of getting away with such a graft; it was his characteristic, delicate, and tactful way of disclaiming any credit for organizing the reunion. The other members of the committee and all who attended give Elliott Barker a vote of gratitude for his leadership.

The reunion was held from Thursday evening, June 8, to Sunday noon, June 10, at the Boxwood Manor, Old Lyme, Conn. A place better suited to our needs would be hard to find. On the elm-shaded street of Old Lyme stands this fine colonial mansion with big boxwood trees on either side of the high front steps. Back of the manor house extended the most gorgeous gardens, in full blossom, surrounded by cottages, pavilions and dormitories. The men had one building with a large common room, large shaded porches, and bedrooms upstairs. The women had a large cottage to themselves.

Present were: Bob Allyn, George Anthony, Elliott Barker, Henry Belcher, Arthur Blanchard, Martin Boyle, George Cottle, Fred Dawes, Dan Edgerly, Earle Emery, Lester Gardner, Charley Hurter, Van Lansingh, Roy Peavey, Allston Sargent, Horace Thayer, George Treat, Fred Twombly, Charley Wing, and Charley Winslow. The ladies present were wives and sisters of the men. Mrs. Allyn, Barker, Belcher, Blanchard, Dawes, Hurter, Thayer, and Sargent's sister, Mrs. Plaisted, and her son, and Martin Boyle's sister, Mrs. Jones.

Charley Hurter took a picture of the gang in the garden showing: Winslow, Blanchard, Treat, Wing, Sargent, Edgerly, Cottle, Anthony, Gardner, Barker, Twombly, Hurter, Allyn, Boyle, Emery, Dawes, and Peavey.

Arriving Thursday evening, men and ladies all had dinner together. Thereafter there was complete segregation. Some of us did not even see our wives to speak to until the very last event, and we were getting decidedly uncomfortable as to the reception we would get when we finally reported to them again. Imagine our delight to find everything lovely. They had had such a pleasant time among themselves that they had not noticed any neglect. In fact, they had

organized an association of their own. The Henny Pennies of '98 to meet henceforth at five-year intervals. They even had a cheer to which we were treated at midnight Saturday under the cheer leadership of Mrs. Bob Allyn.

There is an interesting nine-hole golf course nearby which claimed some attention from a number of us, an excellent bathing beach a couple of miles away which was enjoyed by several, including some of the ladies. Bridge games occupied some of the evenings, but mostly the bridge tables were a center of entertainment for the whole crowd due to the horse play of Dan Edgerly. The real business of the reunion however consisted in the smaller and larger groups, sitting on the cool piazza, or strolling around the grounds, or even following the golf players around the links. Whatever group you happened to join, you were glad you were having the reunion. Then Saturday night was the class dinner. Charley Winslow was toastmaster. First he auctioned off all the unused equipment which had been brought for the reunion — tennis balls, baseballs and bats, soft ball — the proceeds of which will keep the class going until the next reunion. After this, his introductions were worth the price of admission, but a streak of modesty pervaded the responses and the speech making was soon over and we adjourned to the large common room where, to our delight, we found the ladies, and the picture machine all set up. First, we saw a reel of a former All Technology Reunion sent on by Paul Johnson. Next, we saw two reels of Bob Allyn's, showing the performance of a motor attachment for canoes. We believe this is an invention that Bob, as patent attorney, is interested in developing. It certainly is a wonder. Finally George Cottle, who had been showing these reels with his projector, turned to his own films which he has taken in the South Sea Islands, India, Burmah, Ceylon, not to mention most of Europe and our own country. George takes his pictures with the greatest artistry, and the talk with which he accompanies them surpasses that of the professional travel talk lecturers. George would have stopped after a couple of reels but the crowd would not let him, and, except for the intermission at midnight for the ladies to announce the formation of their club and to give the Henny Penny cheer, he was kept to it until far into the morning.

A few days after returning home Elliott received the following from Dan Edgerly: "Congratulations should certainly be sent you for the way you handled the reunion. We all had a good time, but, for heaven's sake, at the next one do not bring baseball bats to show that we are not so lively as we once were. At the next one, while some of us hope to still saunter leisurely over the golf course, it may happen that lounge chairs might be most appropriate after all."

Fred Dawes' son, a graduate of Tech, is in the novelty manufacturing business. He has invented a garter which is really new in principle and the only one ever

1898 Continued

made which would hold up one's stockings without discomfort. Fred gave us all, ladies included, a pair as souvenirs. Charley Winslow has always been interested in the broad question of the organization of medical service. Recently he has served as Vice-Chairman of the General Committee and Chairman of the Executive Committee of the Committee on the Cost of Medical Care. This committee was sponsored by the Government in conjunction with the Medical Societies and its recommendations, which have recently been published, cover questions of the greatest sociological importance. Our class has many interests in the field of medicine. Alice Weld Tallant is practicing physician and obstetrician at the Babies' Hospital, Philadelphia, physician to the Joy Day Nursery, consulting physician to Sleighton Farm (for delinquent girls), and a member of the committee making a study of maternal deaths in Philadelphia. Besides the foregoing, she is listed as engaged in a number of non-medical public services.

Harold W. Jones writes: "Expecting to be transferred to Honolulu this summer for two or three years. I am a Colonel in the Medical Corps of the Army in charge of the surgery in a 700-bed hospital (Fort Sam Houston, San Antonio, Texas) and that is all I do from morning until night from one year's end to the other, no matter whether we have bank holidays or not. Personally I am not for Technocracy, Democracy, Huey Long, Prohibition or Universal Suffrage, but I believe in sound pictures, sound money, Long Island Sound, and a few other things. My scalpel keeps me alive but not always the other fellow."

George Hiller writes: "Busy, happy, and reasonably prosperous insuring industrial and mercantile properties in New England, studying geology, and enjoying social and musical activities in Providence." Mark Taylor is doing the drafting on the new Garand Semi-Automatic Rifle, Cal. 30 for the United States Army. Fred B. Cutter is still in the steam, electrical, and diesel machinery business under the firm name of F. B. Cutter Company, 323 West 90th Street, New York City.

Charles F. Smith writes from 10 W. Citrus Avenue, Redlands, Calif., that he would like to see any of the class out that way. His son, Franklin G. Smith, is in the graduating class, 1933, U.S.M.A. West Point, and is Captain of the Golf Team that plays Tech. — Horace R. Thayer is Assistant Professor of Engineering Drawing at State College, Pennsylvania. Karl Waterson married Mrs. Anne Darling Stewart of Chelsea, Vt., November 28, 1928. They have a daughter, Anne Elizabeth, born January 3, 1933. — Lester Gardner is Honorary Secretary of the Institute of Aeronautical Sciences, a society organized to promote the interests of aviation.

Edgar Weimer had planned to come to the reunion, but we found this telegram at Old Lyme: "Acting as consulting engineer for our State Department of

Properties. I was needed at the last minute and, to please Governor Pinchot, I am here instead of with the boys. Our country needs '98 men. Let us see what we can report during the next five years. Good Luck." — Paul Johnson had hoped to come to the reunion but not being able to do so in person, he sent the reel of films and also a number of pictures of the recent earthquake damage at Long Beach. Although his home, Altadena, is only a few miles away, there was no damage there.

The Secretary enjoys reading Babson's column on the financial page of the Saturday Boston Transcript. No doubt this column is copied in the newspapers of all our cities. He read with particular satisfaction the column in the August 12 Transcript entitled "Can We Keep Our Dollar Worth a Dollar?" Babson does not believe a commodity dollar would function satisfactorily in this country and he gives convincing reasons. A few months earlier in *Collier's* Magazine of March 4, 1933, in an article entitled "Don't Let Them Kid You," Babson riddled the ideas of Technocracy, of price fixing, of inflation, and advocated confidence and honesty and sticking to business as a sure means of overcoming the depression. We were disappointed that Roger did not come to the reunion. Roy Peavey did come and ably represented the Babson organization. In their opinion, the business cycle has definitely passed through the low point and business will improve anyway, whatever steps the Government may take.

Herbert Ivory Lord died May 25, 1933. Bert Lord had been looking forward to our reunion with as keen anticipation as any member of the class. Indeed, his very urgent wish to have it this year was a big influence in shaping the committee's plans to go ahead with it. We condense the following obituary from the Detroit papers: Herbert I. Lord, widely known Detroit capitalist and industrialist, died in the Henry Ford Hospital after an illness of a few weeks. As Chairman of the Board of Lee and Cady (wholesale grocers) and more particularly as Vice-President and Treasurer of the Detroit Lubricator Company, Mr. Lord was identified closely with the industrial growth of the city for three decades. On leaving M. I. T., he went to Chicago with the American Radiator Company. In 1906 he came to Detroit with the Detroit Lubricator Company (a subsidiary of the former), and in his association with that firm took part in the development of the automotive industry, becoming known among automotive executives throughout the country. Two years ago Mr. Lord accepted the chairmanship of Lee and Cady. He was also director in several other concerns, including the Detroit City Gas Company, Hammond Standish Company (packers), Graham Paige Motor Corporation, Walker and Company (outdoor advertising), Wolf Wholesale Grocery Company, Checker Stores, Inc., Hammond Building Company. Mr. Lord was married in 1909 to Miss Mary Norton, of Pontiac, member of an old Michigan

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family. They had two sons, John Norton, and Herbert I., Jr., both of whom survive. Mrs. Lord died in 1932. Lester Gardner reminds us that Bert Lord was business manager of *Technique* and was so successful that it was the first college publication to be able to afford a leather cover.

Henry B. Newhall died April 18, 1933. He was President of the H. B. Newhall Company, hardware manufacturers of Garwood, N. J. He is survived by his wife and a son, Richard. — Edith A. Parkhurst died April 21, 1933. She took work with our class at Tech in Course VII after attending Salem Normal School and Radcliffe College. She taught for 40 years at Roxbury High School, retiring in 1927 from her position as head of the History Department. — Edith O. Rowe (Merrill) died January 20, 1932. Miss Rowe also took work in Course VII with our class. She taught at the Malden High School. In 1931 she married William G. Merrill. — ARTHUR A. BLANCHARD, Secretary, Room 4-160, M. I. T., Cambridge, Mass.

1900

Final papers have passed transferring title of a beautiful old Colonial house and large lot of land situated on First Cliff, Scituate, at the entrance of Scituate harbor and overlooking the ocean. This place, one of the most beautiful estates of the South Shore, was formerly the estate of the late George Walback. Title has passed from the Cohasset Savings Bank to Joseph P. Draper, who has already started making extensive improvements for year-round residence. This looks as though some future class reunion may be held here, eh what, Joe?

A notice of one of the June weddings of interest to the class states: "Miss Anna Sumner Dunbar, daughter of Mr. and Mrs. Howard Reginald Dunbar of Canton, wore her mother's wedding gown of *mousseline de soie* and a veil of Brussels lace for her marriage yesterday afternoon to Mr. John Fairbanks Partridge, son of Mr. and Mrs. George Fairbanks Partridge of Cambridge. The Rev. Lloyd H. Valentine of the Unitarian Church in Lynn officiated at the four o'clock service which took place at the home of the bride's parents. Mrs. Richard Hanson Barbour of Milton was her sister's only attendant, and Mr. Charles Street Jeffrey of Cambridge was best man. Miss Dunbar was graduated from Smith College in 1929. Mr. Partridge is a graduate of Harvard University. Mr. and Mrs. Partridge will be at home after July 1 at 51 Reservoir Street, Cambridge."

Jim Batcheller dropped in on his way to Mattapoisett for the summer and was looking in the best of health. After visiting his son at Annapolis he planned to take in the World's Fair on his way back to Oregon.

A letter from Leigh S. Keith of Chicago informs us of the sudden death of his wife this spring and of the interment in the family lot at North Easton, Mass. The sincere sympathy of the class is extended.

1900 Continued

With regret we record the passing of John B. Conant of Somerville, who died on June 2 at Somerville. J. B. was born in Charlestown 58 years ago and after being graduated in Course VI went with Stone and Webster, first to Lowell Electric Light Company, then in 1904 to Dallas Electric Light and Power Company in Texas, as manager. After retiring from S. & W. in 1909, he took up his father's business, that of mirror manufacturing, under the name of Conant Bros. He is survived by his wife, Allyne, and a daughter. He was a member of Belmont Spring Country Club, Boston City Club, Central Club of Somerville, Rotary Club of Somerville, and Aleppo Shrine, Massachusetts Consistory, 32nd Degree Masons. While his health permitted, he was a constant attendant at our periodical dinners and his classmates will greatly miss his charming personality.

Tom Perry writes as follows: "Knowing that you need some padding to fill out the columns of your somewhat scanty and irregular class news, I am giving a few alleged facts that may at least serve as space fillers, if not as real information. It seems to be singularly true that engineering secretaries are neither imaginative nor visionary and need a few anchors on which to depend. Your humble servant and his oldest son, Bretton (ex-'33 M. I. T.), together with the younger son, T. D. P., Jr., (who is a junior at Yale) motored in the 1927 family flivver to Chicago the latter part of June for the three-fold purpose of seeing the Fair, attending the M. I. T. dinner, at which President Compton spoke, and endeavoring to do a little business. The M. I. T. banquet was an outstanding success and both Dr. Compton and Dr. Bush were at their best in their addresses. There were present from our class: Dean Hinman, Frank D. Chase, and Phil Moore. The latter was toastmaster and carried off the honors in grand style. The M. I. T. space in the Hall of Science at the Fair is a very interesting center and the register of M. I. T. alumni constantly proves its utility. Inquiries received there on the part of prospective M. I. T. students are quite illuminating and seem to indicate that as a promotion agency the exhibit is well worth while. There is little else to relate regarding the Perry family, except that so far they have succeeded in annexing enough edibles to decorate the table three times a day in spite of raggedy clothes, harassed minds, and constricted bank accounts. The Perry family are looking forward with anticipation to an alluring threat by the Percy R. Ziegler family to visit them en route to or from the Century of Progress Fair. The writer recognizes that this is not ideal padding for your columns, but it is a darn sight better than some of the stuff you have run."

Now that you have learned what one of the class thinks of the class notes, is it not possible that they may be made more interesting by sending in some real letters like Tom's to liven up the column? Sit right down and do it now. — C. BURTON COTTING, *Secretary*, 111 Devonshire Street, Boston.

1901

For some reason that I have never been able to plumb, the Institute places the burden of postal charges on the recipient of mail. For a long time, I thought this was confined to the student body, an expression, if you like, of the insouciance of youth and a divine belief that a kindly government would transport any article consigned to its care for the modest sum of two cents. Then it was slowly — and grudgingly — borne in upon me that a like practice obtained in higher circles and that the guileless undergraduate but exhibits a simian aptitude for mimicry. The latest evidence of this New England attitude of mind deals with the annual letter with its accompanying documents which was sent out early in August by the Technology Letter Shop.

As a result, over 100 of the missives were blandly returned to the address in the upper left-hand corner with the succinct statement that the postage was insufficient, while I presume the remainder of you have contributed an unwilling moiety of your income — and damned your Secretary. Only one so far has rendered his protest vocal. Bob Derby, with a pessimism unworthy of his ample and genial nature, sends me word that he assumes that this is an indirect method of collecting class dues. He also contributes an obscene remark about skinning a cat, but my feelings are too wounded to record it. So I am penning this protest, rejoicing that it will reach those of you who read *The Review* — I wish there were more (this is the only thing I've said this year of which the Editor wholly approves) and resigning myself to the obloquy that will be showered on my venerable and vulnerable head by the non-subscribers and the illiterate.

Turning to pleasanter matters, I have just received a most interesting letter from Fred Clapp — for the moment in this country to renew acquaintance with the family — a part of which I transcribe: "No, I am not likely to surrender my traveling record without making such a further spurt as to place you and other competitors in the shadow. I shall, however, cheerfully take a back seat if anyone can pass me over a several years' period."

"There is no longer any secret about my activities in Persia. I was sent for by the Imperial Government to act as adviser during the negotiations for a new concession to be granted to Anglo-Persian Oil Company. These matters were taken in hand at once on my arrival in March and were concluded early in the spring. The newspapers will have set forth the results, and in them I take a pardonable amount of pride. The position of the Persian Government in the oil world has undoubtedly been substantially improved and it is now in harmony with the oil company on nearly every important point."

"It was not likely that I would allow my strictly advisory capacity to end my travels in Persia, and I immediately set out (after concluding my official busi-

ness) to see some new sections of that country and to visit again some localities in which changes have taken place since my Persian travels in 1927 and 1928. Isfahan and Persepolis were revisited, I made a journey to Meshed in the north-eastern part of the country and returned over a new road not far from the Russian frontier. From Tehran the journey was continued west to Tabriz and thence to Mosul (in Iraq) by a highway just completed through a section which I may justly call 'darkest Persia' (a country that is fast awakening and is showing many signs of progress)."

And I used to think that geology meant sitting in the basement of the natural history rooms and sorting rocks, just rocks, not the vernacular. Parenthetically, I see by the papers, as Mr. Dooley has it, that another of my comrades of the days when I did just that thing, Grabau, also a geologist, is on a short trip to this country after many productive years in China. Advice to young men with a wanderlust — and who hasn't it, young or old — Be a Geologist!

Nat Patch, the enviable Benedick, has just been elected President of the Non-Ferrous Foundry Association for Industrial Recovery. This organization has prepared and will administer the code for the industries dealing with brass, bronze, and aluminium. He has promised to explain to me how the dollar with a lower purchasing power is going to buy more of the commodity at a higher price. And my friend Reed once told me that the theory of numbers had never been sullied by a practical application. Perhaps the snapper lies in the adjective. Well, anyhow — though not directly as a result of Nat's labors — Bill Freeman writes me from Portland: "Same — and more of it — thank God." And from the ever faithful Phil Moore — on whom be Peace — comes a clipping which I excerpt in part:

"Wilfred W. De Berard of Chicago was today named Illinois state engineer for the federal public works administration, completing the state organization which will supervise the spending of federal public works funds in Illinois."

"Mr. De Berard, a sanitary, hydraulic, and municipal engineer, was recently a member of the regional planning association of Chicago. His appointment was announced by President Roosevelt, through Secretary of Interior Ickes, along with state engineers for each of the other 47 states."

"Mr. De Berard will act as executive officer of the state federal public works board recently named for Illinois. It will be his duty to organize state offices, direct personnel, and examine all applications for federal public works financing. The results of his investigation into proposed projects will be submitted to the state advisory board, which, after consideration, will recommend action regarding the projects to Secretary Ickes."

"In addition, Mr. De Berard is to begin at once to plan a state public works program which will include state projects which can be started immediately."

1901 Continued

Thank God, Bill is sanitary, even though an engineer. Incidentally — and seriously — it is a just recognition of many years of fine service to the public.

There is — or are — more good news, but I shall reserve it for another month. Still on the hilltop, though my neighbor, Red Proctor, has so far withheld his official recognition of my citizenship. — ALLAN WINTER ROWE, *Secretary*, 4 Newbury Street, Boston, Mass.

1903

The Thirtieth Anniversary of the class graduation was celebrated by an afternoon and evening reunion at the Hoosic-Whissick Club, Canton, Mass., on June 3. About 35 members of the class signified their intention to attend, but only 15 showed up. With several wives and children, 22 sat down to dinner, after renewing acquaintances, reading messages from absentees, and discussing affairs at the Institute. The following made up the party:

M. H. Clark, Bradshaw and two children, Gould, G. M. Greene and Mrs. Greene, Jackson, Joyce and Mrs. Joyce, K. D. Jewett, King and Mrs. King, Nutter, Nyhen, Potter, Stiles, Whitehead, Mrs. A. W. Eustis, Mrs. J. A. Cushman, and the Secretaries. A very enjoyable reunion, filled with stories of the days at Tech on Boylston Street, and many requests of the Secretaries for news about this one and that one, which they were able to answer in many cases.

The questionnaire sent out about a month previous had brought in answers from about 20% of the class. Several men had written the Secretaries recently and we were able to tell about Hewitt Crosby's taking special courses at Columbia, for instance, and receiving his degree of M.S. in civil engineering. He says he has learned a lot about this generation, "far ahead of us at their age." Can't quote it all, but it was mighty interesting and we'd be glad to pass his letter on to any one else to read.

Seym's wrote of his work since 1903 with various coal companies in Pennsylvania, he being now with General Coal Company in Philadelphia as general sales manager. Has one daughter, 17 years old.

Lounsbury writes from Superior, Wis., as manager of the Water, Light and Power Company there, that he has "been doing his stuff in this town for 27 years, from Boy Scouts, and Camp Fire Girls, to being President of the Rotary Club," and most anything else. Still has his "original wife, two daughters through college, and three boys."

Beverstock writes that he is "lost crossing the Sahuaro in Arizona." He was installing a 100-ton cyanide test plant, 40 miles from water and 130 miles from supplies, in May. Whitcomb has been teaching an evening course in textile testing at the R. I. School of Design in Providence, and now is in charge of the laboratories at the Interlaken Mills at West Warwick.

W. H. Adams sent a long and interesting account of his 30 years out, from Glendale, Calif. After teaching at Tech

and at Brooklyn Polytechnic he spent four and a half years at the government university in Tientsin, China. From 1912-1918, he was at California Institute of Technology, learning to go into the Army. He left the army in 1922 and has been in private practice and various places until 1931, since when he has been Maintenance Engineer, which also means City Engineer, Street Superintendent, Building Superintendent, and Superintendent of Power and Utilities at the Rancho Los Amigos, a County Poor Farm of 3,500 people. Some job! Incidentally, he is Lieutenant Colonel in the Ordnance Reserve, U.S.A.

Schlemm is Town Planning Consultant in Montreal and has also written an account of his 30 years' work, which has extended from Texas through Indian Territory, Wisconsin, on railroad and topographical work, finally landing in Montreal, where he has been since 1910. He acts as Consulting Engineer for various cities and towns and was a member of the Planning Board for Montreal and Chairman of the Town Planning section of the Metropolitan District. He has two sons, one in McGill. Plays golf and tennis and enjoys hunting and fishing in Quebec.

About 35 others wrote brief greetings to the Class. Too bad they could not have been present. We tried to get Ruxton to come down from Springfield, Mass., but either the contracting business, golf, or politics, in all of which he is interested, must have kept him away.

We were glad to receive a copy of the A.S.M.E. *News*, giving an account of Potter's installation as President of the A.S.M.E. and an excerpt of his speech of acceptance.

Cass Schmidt is still in New Mexico and doing as well as a lot of the class under existing conditions. King hears from him occasionally.

Death visited two members of the class recently, both times unexpectedly and suddenly. F. W. Davis, I, died July 9 at Waban, Mass., just about a month after we had been talking with him over the telephone. He thought at that time he might be at the reunion. We have no details other than it was sudden. Davis was head of the Pilgrim Laundry Company at the time of his death.

Harry H. Marshall died suddenly August 7 at East Peru, Maine. For several years his name had been on the list as "address unknown." The Secretaries would be glad of further details in each case for the records.

William A. Harrigan, whose name has been on the "lost list" for several years, died in July, 1926. He will be remembered by many Course I men as a man, much older than the rest of the class, who had a lot of courage and determination to tackle Tech after working a number of years. He was on building construction as an inspector in Boston and later in Chicago, finally as Civilian Inspector of Construction in the U. S. Navy for 12 years. He died of cancer while on private construction work in Honolulu, P. I. — FREDERIC A. EUSTIS, *Secretary*, 131 State

Street, Boston, Mass. JAMES A. CUSHMAN, *Assistant Secretary*, 89 Broad Street, Boston, Mass.

1907

On July 4 the Secretary had a pleasant surprise when his answer to a telephone call at his home found Carl Bragdon on the other end of the wire. Carl was visiting friends in Boston for a few days and was thoughtfully renewing acquaintance with a few classmates. His business headquarters are now in New York with Ault and Wiborg, varnish manufacturers, the concern with which he had been associated for many years. He said that his three daughters were in Maine for the summer, the second oldest having graduated from Smith College last June.

A letter from Bob Keyes dated June 7 told of his change of address from New York to care of The Cooling and Air Conditioning Corporation, Hyde Park, Mass., home address 57 Dartmouth Avenue, Dedham, Mass. The Secretary has talked with Bob on the telephone since then. Bob is sales manager for this company, a division of B. F. Sturtevant Company.

By chance the Secretary met Milton E. MacGregor on a car in Boston during July. Mac is still a junior master in one of the Boston high schools and was taking summer courses in geography and sociology to give him points which would count toward his promotion.

On June 24, Joseph M. Bradley, son of Mrs. Kenneth Moller by a former marriage, was married to Miss Barbara Richardson of Brookline, at Christ Church in Harwichport, Mass. Mr. Bradley's prep school was Milton Academy and he was graduated from Harvard in 1933, where he was a member of the Owl and Hasty Pudding Clubs. Kenneth has told the Secretary that his step-son has gone to work at the shoe factory in Boston of Bancroft Walker Company, the firm of which Bert Bancroft of our class is the head.

Eugene V. Potter, who for many years was associated with Walter M. Evatt in construction work in Boston, has been in business for himself doing fire insurance adjustment work for about a year. His only son, a Dartmouth man, graduated from Harvard School of Business Administration last June and is to teach at Browne and Nichols School in Cambridge this fall. Gene lives on Garrison Road, Hingham.

Andrew Rebori is receiving a good deal of attention, not only in Chicago, but elsewhere, on account of his connection with some features of the Century of Progress Exposition. In the Boston *Herald* of July 16, an article about the Atlantic and Pacific carnival and exhibit stated that the whole exhibit was designed by Rebori and Tony Sarg. Then the *Herald* of August 20 had a special article about the Streets of Paris and Sally Rand at the Exposition, in which Rebori, "Chicago architect, society leader, polo player, and originator of the Streets of Paris," is referred to as "America's most brilliant press agent." The

1907 Continued

article continues: "For three years Mr. Rebori, owing to the condition of the country, has been doing little in the pursuit of his profession. Instead he has been entertaining Chicago's 400 with his idea of novel dances, cocktail parties, clambakes, beach gatherings, and the like. His greatest and best effort was the Four Arts ball which he staged last winter. He turned the whole ground floor of the Drake Hotel into the Latin quarter of Paris. There never was such a night in Chicago.

"A few days before the dance there came to him a little but hefty blonde girl. She told Mr. Rebori her name was Sally Rand and that she had been a star in the movies. She would do anything for publicity and suggested that Rebori permit her to appear at his ball as Lady Godiva, clothed in nothing but her golden hair and riding a white horse.

"It's all right with me," replied the gallant Rebori. "It may help you in what you're aiming at. All I can give you is a pass." "All right," said Miss Rand. And Mr. Rebori wrote on a piece of paper: 'Pass two horses.'

"Chicago will never forget Sally's appearance at the Four Arts ball. The horse was blind and the pass was accepted. The animal was blind and had to be pushed and pulled by 50 sailors from the Great Lakes training station. Mr. Rebori, not quite sure of how the stunt would be received, had retired to his apartment in the hotel, but as soon as he found that both he and Sally had become famous he removed the Brittany fisherman's red beard which he had donned as a disguise and came down to receive his share of the applause.

"Forty influential and wealthy Chicagoans produced the money for Rebori to build the Streets of Paris at the World's Fair, stipulating only that Miss Rand should be a part of the show."

Carl Trauerman is one of the members of our class who is a source of joy to the Secretary because he is so cooperative in sending us news regarding himself and other men of '07. In the *Mining Review* of June 6, Carl has two special articles: one called, "Therefore, Wherefore, Bondholder! Therefore, Wherefore, Gold!", and the other, "The New Deal Arrives in Butte." Also in the same publication mention is made of the fact that Carl is one of three incorporators of a new firm in Montana, Basin Gold Fields, Limited. *Mining Truth* of June 1 lists Carl's name with 23 other authorities who provided Senator Pittman, Chairman of the Senate Foreign Relations Committee and a member of the American delegation to the World Economic Conference at London, with information on silver. Carl has established an enviable record for himself as a mining engineer, broker, writer, Democrat, and booster for the State of Montana.

The following item appeared in the Boston *Herald* of August 28: "Professor and Mrs. Henry B. Alvord of Melrose Highlands announce the marriage of their daughter, Miss Margaret Graham Alvord, to Mr. Robert Lloyd Briggs,

Jr., on August 20 at Altadena, Calif., where they will live." — BRYANT NICHOLS, *Secretary*, 12 Newland Street, Auburndale, Mass. HAROLD S. WILSON, *Assistant Secretary*, Commonwealth Shoe and Leather Company, Whitman, Mass.

1909

Cordial greetings to you all as we resume the Class Notes for the coming year. May it be one of renewed hope and faith in the future welfare of our country.

Through the Alumni Office we hear that Alfred S. Kellogg is connected with Morgan and Cie, 14 Place Vendome, Paris, France, and that John E. Otterson is with the Electrical Research Products, Inc., 250 West 57th Street, New York City.—Reg Jones reports that while in Chicago this summer he saw Tom Black, who is investment manager of the Equitable Life Insurance Company for the Chicago district.

Virginia Parker, Joe's elder daughter, was the valedictorian of the graduating class of the Braintree High School last June. She was awarded the French Medal for scholarship and also the Philergians Essay Prize. She is planning to enter Boston University this fall.—Tom Desmond was one of the honorary members elected at the annual meeting of the Harvard Chapter of Phi Beta Kappa, held last June at Cambridge, Mass.

It would be interesting to know where our boys and girls are attending school or college. Why not drop the Secretary a line telling him what your youngsters are doing?—Carl Gram, Jr., is entering Dartmouth College this year. Charles T. Main, 2d, and Samuel F. Main are at Tabor Academy, Marion, Mass.—CHARLES R. MAIN, *Secretary*, 201 Devonshire Street, Boston, Mass. PAUL M. WISWALL, *Assistant Secretary*, General Foods Corporation, 250 Park Avenue, New York, N. Y. MAURICE R. SCHARFF, *Assistant Secretary*, Main and Company, 1 Wall Street, New York, N. Y.

1910

Three letters from classmates have come in during the summer and here they are. It would help a lot if more of you would respond to the appeals for letters, but we are grateful to those who do.

George Mylchreest writes: "I confess that I have been one of the kickers who thought and said that 'Our Secretary is a Flop,' but now that you have sent me a request for a few lines and enclosed a stamped, addressed envelope, I must comply at once.

"Fortunately or unfortunately, I am one of those of the illustrious Class of '10 who succeeded in obtaining a job upon graduation and I remained with the same company for about 14 years. For the past eight years I have been in business as a consulting engineer with my partner, Joseph T. Reynolds, an architect, in the general practice of engineering and architecture. Like everyone in this profession we have suffered during the past year or two, but this year is showing considerable improvement, the past three weeks having been extremely busy ones.

"In 1911 I was married to Iva A. Harris of Middletown, Conn. We have two children, the older one, George Dudley, 21, a junior at Wesleyan University, expects to attend M. I. T. after his graduation from Wesleyan. He was fortunate in winning second place in the last Edison Contest and was awarded a four-year scholarship in any college of his choice. As we had already planned his course for four years at Wesleyan and two at Tech, we made no change in our plans upon his winning this scholarship, which will be worth \$1,600 to him. Our second child, Dorothy Iva, 16 years old, is now a junior in Weaver High School in Hartford.

"As for myself, I have no serious defects except that I do play at golf, billiards, and occasionally chess. We have a live Technology Club in Hartford, but I see few of our classmates. Professor Laurson at Yale has been in Hartford often and I see him in New Haven occasionally. He is just as young and lively as ever. A. C. Page now has a responsible position with the Whitney Manufacturing Company of Hartford. Last year he helped to make the year a little less depressed by giving me a job to plan a summer home for him. M. J. Turnbull, who is with the Merrow Machine Company, also helped me out by giving me some work to do at the factory. So it pays to have Tech classmates in your vicinity."

Henry Perley obeys that impulse as follows: "In reply to your letter, saying that I was one of the ten names sent to by the Class Secretary for news from members this month, I wish to say that I always look for the notes from the 1910 men in each month's issue of *The Review*. So I feel that I should try to make a small contribution. I suppose where members like myself have little or no contact with the other members of the Class, there seems to be little to write about except of a somewhat statistical nature which does not particularly appeal, when applied to one's own case. On the other hand, I do like to read what other men are doing or what they have accomplished, and so I am writing you these few lines.

"I have been associated with the Davis and Furber Machine Company, located in North Andover, Mass., manufacturers of woolen machinery, for about eight years. Those of the class from Course II who went on the excursion with Professor Swamb to visit the mills in Lawrence, Mass., will perhaps remember the woolen carding machines which we saw in one of the mills. These are one of D and F's products.

"I make my home in Georgetown, Mass., married and have three children, two boys and a girl. The oldest boy enters high school this fall so it will not be many years before he may be considering M. I. T. Some of these items are no doubt a repetition of what I gave out on the occasion of our Twentieth Anniversary in 1930.

"Perhaps what I have written will be sufficient for my first attempt to provide a little material for class news, but in

1910 Continued

closing I would like to give a word of appreciation to the Class Secretary for his efforts to give us the news from 1910."

Here is a communication from Professor Dean Peabody: "Your urgent request for news spurs me to action. Since I last reported I have been teaching applied mechanics and reinforced concrete design at M. I. T. My wife and I have varied this routine of living to a tabular view by mountaineering vacations. We have camped in the West and climbed in California, Colorado, and twice in the Canadian Rockies. A couple of visits to the Alps gave me a chance to try myself on some of the well-known climbs. This year our four children demanded part of our vacation. We have bought a trailer and plan to tour New England camping in the cow pastures of our friends. If your request had come a month later, I might be able to respond with a tale of adventures in the wilds of the Berkshires, and the Green and White Mountains, while my wife and I look for cliffs and the children for swimming holes and horseback rides." — DUDLEY CLAPP, *Secretary* 40 Water Street, East Cambridge, Mass.

1911

With Labor Day in the immediate offing as these notes are being typed, there is no evidence that the September "write to Dennie" campaign is under way, but it may develop as September ripens. At any rate when you read these notes, sit right down and write that letter if you have not already.

Two daughters of classmates became June brides this year. At Broad Park Lodge, White Plains, N. Y., on the afternoon of June 5, Miss Jean Newbury, daughter of Mr. and Mrs. James K. Campbell, was married to Count James Lovatelli of New York, son of Count Withold Lovatelli of Rome, Italy. — Nineteen days later, at The Boulders, Nicolin Lake, Ellsworth, Maine, Miss Barbara Copeland became the wife of Mr. John Barbour. We all wish the happy couples every joy.

We learn from *The Michigander*, published at the University of Michigan, Ann Arbor, Mich., the following about Paul Cushman, VI: "A newcomer to the Campus is Paul A. Cushman, Professor of Mechanical Engineering, who joined the Faculty last fall. But although he hails from the Bay State and has two degrees from M. I. T. (S.B. '11 and S.M. '27), he has an Sc.D. from Michigan as of last June and is very much at home in the Middle West. His work as a teacher and as an engineer with the Telephone Company has taken him from coast to coast; some of the institutions at which he has taught being Trinity College, M. I. T., University of California, Penn State, Brooklyn Polytechnic Institute, University of Arkansas, University of Nebraska, and Vanderbilt. He is a member of the American Society of Mechanical Engineers, and the American Societies for Steel Treatment and Engineering Education. Professor Cushman has done a great deal of research work along various lines, but his treatise on the use of soap film (or

membrane analogy) as a means of obtaining data for shearing stresses in torsion and bending has brought him the widest recognition. Done as the thesis for his doctor's degree, it received considerable publicity. Last December he married Mary Ortille Davis, Michigan '21."

Commencement exercises last June numbered among their preparatory school graduates Mary Elizabeth (Mollie) MacPherson of Framingham, Mass., at Dana Hall, Wellesley, and Calvin Powell Eldred, 3rd, of Dedham, Mass., at Governor Dummer Academy, Topsfield. Mollie is the daughter of Mr. and Mrs. Roy MacPherson and was with her father and mother at our Twenty-Year Reunion up here at Douglas Hill in June, 1931. Young Cal, son of Mr. and Mrs. Calvin Eldred, was President of his graduating class at Governor Dummer.

Rudolph Emmel, III, has taken a big shift of location in his mining activities. After years in South America, most recently in Peru, Rudie is now with Tarkwa Gold Areas, Ltd., Tarkwa, Gold Coast Colony, West Africa, via England. Another foreign transfer takes Winthrop Haynes, XII, from Paris to Standard Oil Company, 68 Pall Mall, London.

Other changes include: Kes Barr, II, with The Hegeler Zinc Company, from Danville to 1224 Medical and Dental Arts Building, Chicago, Ill.; Ed Blade, VI, from Sunol to Belvedere, Calif.; Paul Kellogg, IX, from Battle Creek, Mich., to 146-64 Delaware Avenue, Flushing, N. Y.; Phil Kerr, II, from Charleston, W. Va., to 17 Wyndcrest Avenue, Catonsville, Md.; Bill Shepherd, VI, from Grosse Point, Mich., to 466 Lockwood Avenue, Akron, Ohio; and Vic (S. C.) Willis, I, from Webster Groves, Mo., to 17 Bradlee street, Dorchester, Mass. Alec Yereance, I, writes that he is still with the Mortgage Loan Department of the Prudential Insurance Company in Newark, but has changed his residence from East Orange to 78 Hope Road, Eatontown, N. J.

On the eve of our opening in mid-June, on June 9 to be specific, the Secretary had the misfortune to have a small awning pulley come out of its socket and strike him in the right eye-ball, cutting the cornea to within two millimeters of the pupil. This meant a bandaged right eye for a little over a fortnight and black glasses until after the Fourth, but fortunately the eye specialist says everything has cleared up now very well, but "you were a lucky chap not to lose the sight of that right eye!"

During August we were delighted by successive visits from Jack and Mabel Herlihy; Emmons and Joe Whitcomb; and Mr. and Mrs. Carl Sittenger '11. Please re-read the first paragraph, the "write to Dennie!" — ORVILLE B. DENISON, *Secretary*, Douglas Hill Inn, Douglas Hill, Maine. JOHN A. HERLIHY, *Assistant Secretary*, 588 Riverside Avenue, Medford, Mass.

1912

We had hoped to be able to get E. H. Schell, II, to write us a paragraph or two for this issue, but our letter to him was

answered by his Secretary, who reported that Professor Schell has been away on a two months' trip in Europe. Schell acted as advance agent for a part of this year's graduates who made a two months' tour of Europe, in a motor caravan, visiting the better-known industrial plants. The caravan was a special truck, fitted with bunks, complete cooking equipment, and living quarters, and served both for transportation and lodging for the party.

Another classmate has joined the Technology faculty. Jerome C. Hunsaker, XIII-A, has been appointed head of the Department of Mechanical Engineering to fill the place left vacant by the untimely death of Professor Miller. As we write these notes, we assume that this issue will carry in other columns a more complete review than we can present here of Hunsaker's distinguished career in the field of aeronautics. His more recent work as Vice-President of the Goodyear-Zeppelin Corporation has been reported from time to time in these notes. Many of us will recall hearing much of his notable work in the Navy Department, where he rose to the rank of Commander before his retirement to enter the commercial development of Zeppelin-type airships in this country. In behalf of all his classmates, we extend our congratulations and best wishes to Dr. Hunsaker in his new undertaking at M. I. T.

A letter from William C. Bird, I, Vice-President of the Prophylactic Brush Company, Florence, Mass., shows that some of our members at least are "doing their part" to help along the program of National Recovery. Bill writes: "Like most manufacturers, I am being kept busy in formulating the Code of Fair Competition for our brush industry and it is some job. Besides that, I have covered most of the country since the first of the year in the interests of the business, as our friends, the wholesale druggists, seem to appreciate a call from the head of the house. So much traveling around also gives one a chance to size up the business possibilities in the different territories. You will be interested to know that in Pueblo, Colo., I called on Elbert D. Greene, Class of '10, and in Kansas City, on Fred Dierks, of our own class."

Let's all take a look at the old battle-scarred tooth brushes on the bathroom mantel, and resolve to go out and buy some new ones before Bill hikes the prices too far up. — FREDERICK J. SHEPARD, JR., *Secretary*, 125 Walnut Street, Watertown, Mass. DAVID J. McGRATH *Assistant Secretary*, McGraw-Hill Publishing Company, Inc., 330 West 42nd Street, New York, N. Y.

1913

The season's greetings to all classmates. Of course, you are all interested in the success of our Twentieth Reunion held this past June. The modest celebration, as previously mentioned, took the form of a shore dinner held at the University Club of Boston, on Friday, June

1913 Continued

9. Since favorable replies to the announcement were so few and far between, the class officers were not very sanguine of the contemplated results. Everything turned out fine, however.

Twenty-six attended the affair, mostly from the metropolitan area, with a few coming from New York, and so on, as mentioned later. The social activities were centered around a most excellent dinner, a keg of very good beer, and a splendid get-together and visitation among those present. Dinner was served about seven o'clock and the party did not break up until nearly eleven, and no one left early. This speaks well for the good time as had by all.

Officially on the program was an election of officers and a general discussion of Class and Institute affairs. The officers elected to serve indefinitely are as follows: Brewster, President; Hamilton, Vice-President; MacKinnon, Treasurer; Townsend, Secretary.

Ken Hamilton brought up for discussion a very interesting topic. The Class of 1913 was the first class to have the full four years under Dr. Maclaurin. Immediately after the graduating exercises, Hamilton happened upon the platform and found Dr. Maclaurin's original manuscript of his address to the Class. Hamilton has carefully preserved this document, and now wishes to place it in a suitable place for permanent safety. The Class voted to have copies sent to classmates throughout the country. This is to be done in due season, and then the manuscript is to be turned over to the Historical Memorials Committee of the Alumni Association.

As mentioned in previous notes, Ed Hurst is a budding, if not full-blown, author. He gave a very interesting talk on why, how, and when he wrote his "The Technical Man Sells His Services." Hurst spoke in his usual forceful and eloquent style.

Joe MacKinnon spoke briefly on financial and academic affairs of the Institute, but being of a bashful and retiring nature, pushed most of this work over onto the Secretary. — Al Townsend talked about things academic at the Institute, particularly the new administrative set-up, and the changes in department organizations and curricula. Judging by the number and kind of questions asked, some 1913 men are keenly and deeply interested in the affairs of the Institute.

Bill Brewster presented the financial and business conditions of the Class, and painted a true picture of the difficulties under which the officers have labored in the past. So pathetic and touching was his story that a new business and financial structure has been created, which, it is hoped, will last. A dues campaign was voted and this fall the class officers will begin to function again.

George Starr spoke briefly but effectively for classmates who have not been regular in attendance. He had such a good time he promised to attend all class meetings in the future. — Larry Hart responded to a call for a word of greeting from the New York group. He nearly

wrecked the meeting with the best story of the year. Hart's son, who has just graduated from Bronxville, N. Y., High School, attended the dinner and certainly had a good time. He is headed for the Institute by way of a year or two at some other college. This dinner was his first official interview with a steamed clam.

Other members of the class spoke during the evening, including Charlie Thompson, Pa Ready, Bill Mattson, Jumbo Mahoney, Joe Cohen, Dave Stein, Geoff Rollason, and some whose names momentarily escape the Secretary.

The list of those attending the dinner follows: From New York and New Jersey — Haynes, Rollason, Hart, Hart, Jr.; from Newport, R. I. — Starr; from outside the metropolitan area — Brewster (Plymouth), Smith (Stow); from Boston and vicinity — Cross, Howie, Carlson, Cushing, Hamilton, Hurst, Mahoney, Glancy, Thompson, Ready, Oppenheim, Bevan, Stern, Brande, Mattson, Cohen, MacKinnon, and Townsend. An interesting sidelight was the presence of Larry Bevan. He stayed with us at the Institute for a year or two and then transferred to Massachusetts State College (then Amherst Aggie). Having thoroughly acquired a rural, that is, a farmer's background, he became an important member of the State's Department of Agriculture. He is now director of the division of markets. We hope he shows up at all reunions from now on.

The Boston crowd agreed that we should get together occasionally and decided that November and May of each year would be satisfactory. So here goes until the announcement of the November gathering.

The Secretary wishes to express his appreciation to those who cooperated in making the reunion a success, and bespeaks all classmates to write in once in a while about news in general or class affairs in particular. All letters will be answered. Here's hoping that the "new deal" is already making good results. — ARTHUR L. TOWNSEND, *Secretary*, Room 3-435, M. I. T., Cambridge, Mass.

1914

As we resume these notes for another season, the event uppermost in our minds is undoubtedly our approaching Twenty-Year Reunion. These reunion periods take their form from general conditions as well as from the number of years which have elapsed since graduation. At the end of five years we were still under the war influence and we had hardly found ourselves. By the time our ten-year reunion came around the post-war depression was over and we were still young enough to run bases so that we had a whale of a fine reunion. Five years later found us at the peak of prosperity, a fact which made many feel older and more worldly than they truly were. While a fine time was had, this reunion in many respects was neither hay nor grass.

Now we approach another important event. The depression, the new deal, and even the influence of Pitkin's "Life Begins

at Forty" is upon us. We are more sober — perhaps in more ways than one — yet with an understanding and courage not known to us before. It is an ideal time to hold just the right kind of a reunion. It will be done. It will be much easier to make it just right if each of you would write to President Dorrance or to your Secretary expressing your views as to place, time, and type of reunion desired.

The premier announcement this month is the election of our already famous Porter Adams as Vice-President of Norwich University, the Military College of New England. Adams has been a trustee of that college for some years. — Jerry Blakeley was the victim of a painful vacation accident. While swimming under water he ran into a twig which cut his eyeball. Jerry now resembles Floyd Gibbons but hopes to have the pad off in a couple of months. The accident happened just as Jerry was preparing to move into a new house he had purchased. It at least gives him an excuse for not hanging the pictures straight. — Among the visiting '14 men reported seen on "The Streets of Paris" at the Century of Progress was Dunc Shaw.

The Boston Section of the Society of Automotive Engineers held a harbor outing this summer and prominent both at the outing and on an elaborate poster announcing the event were Dean Fales and Al Devine. — HAROLD B. RICHMOND, *Secretary*, 30 Swan Road, Winchester, Mass. GEORGE K. PERLEY, *Assistant Secretary*, 21 Vista Way, Port Washington, Long Island, N. Y.

1915

Hello everybody! It's good to be talking to you again in our column of 1915 news, but I am sure you would not want this conversation to become dull, boresome, and uninteresting as a one-sided affair with me doing all the talking. That's exactly what is going to happen (maybe we'll have no 1915 at all) unless you boys loosen up with a few letters. The summer has come and gone without a scrap of news from any of our classmates. It's a tough job to write this every month merely from my enthusiasm and imagination. Help me out with enough letters to keep this lively for the whole year.

Aside from that touching, begging please, I hope you and your families all enjoyed pleasant and happy summer holidays. — AZEL W. MACK, *Secretary*, 72 Charles Street, Malden, Mass.

1917

I have a four-page illustrated letter from Walter C. Wood and I am sorry that it is not possible to reproduce it in its entirety. The illustrations of yacht fittings make one either homesick or seasick, depending upon whether he is a land lubber or just a lubber. There are, for example, snap pin clew outhauls, spinnaker pole hooks, bull dog jam cleats, a roller reef for star boats, and a star class roller reefing boom. Here's what Jack says: "We are now established in our new location at The Anchorage, 657 South

1917 Continued

Water Street, Providence. Here we will have increased facilities for rigging work and hardware manufacturing close to the business center of the city. We wish to call your attention to the increasing use of stainless steel for rigging purposes. This long-life material, with strength comparable to plow steel, retains its bright finish and is economical to use. We are prepared to furnish rigging from this new material. We have furnished in the past two years roller reefing equipment for boats ranging in size from stars to cruising yachts. The advantages of this simple and quick method of reefing are being more and more appreciated, and we will gladly furnish information regarding the installation of this equipment. Our line of hardware is being constantly enlarged and we hope to serve you from our new location at 657 South Water Street, Providence."

Chambers Mehaffey and E. D. Sewall drove into Boston recently for a conference with the Dean of Students of the M. I. T. — H. L. Bone was in New England during his summer vacation period. He seemed to be devoting his whole time and attention to the development of a car retarder, that being the particular research program on which he is concentrating his present efforts in Pittsburgh.

Mr. and Mrs. L. L. McGrady are reported as having been hosts to Mr. and Mrs. J. Woodruff Battis while His Honor, the President, was on a brief respite from his kite flying activities in Rochester. — William W. Eaton is reported as having changed his address to C. L. Stevens Company, 75 Federal Street, Boston, the Stevens Company being one of the leading exponents of a modern system of wage payment.

The Boston *Herald* of July 30 announced the engagement and plans for an August wedding of Miss Vivian Hildreth Marr, of Newburyport, and Major John Cheney Platt, U.S.A. Major Platt is now stationed at the Army Base in Boston.

Stan Dunning has called my attention to the publication by Don Tarpley in collaboration with Harold Eberlein of a book entitled "Remodelling and Adapting the Small House". Stan reports that his frequent contacts with Don indicate that things are looking better for the author-architect. The book is published by J. B. Lippincott and sells for \$3.50.

I had a brief but interesting visit with Thomas K. Meloy at the offices of Townsend and Meloy, 155 East 44th Street, New York. I found him still engaged in the combined industrial engineering and financing professions. For example, he has been spending an appreciable portion of his time in Washington demonstrating the finding of places where Remington Rand special machines can save the Government appreciable sums of money. I gather that his work has been effective. Incidentally, he is an authority on hotel management, particularly in reorganizing and financing, and serves in an official capacity as an adviser to many hotels. In connection with this work he has

aided in reorganizing the leading magazine of the hotel industry. As a side issue, he is managing a small detergent company that has proven reasonably successful, even in recent times, and seems on the way to even greater success, especially in New York territory.

The Boston papers in August carried the shocking news of the death of Mrs. Albert Hegenberger at Grand Haven, Mich., as a result of injuries received when the automobile in which she was traveling with Captain Hegenberger left the highway and overturned. Captain and Mrs. Hegenberger were on their way to visit their two sons at a Boy Scouts' camp. — RAYMOND STEVENS, Secretary, 30 Charles River Road, Cambridge, Mass.

1918

Our Fifteenth Reunion turned out to be a tale of two cities: the New York boys meeting on Long Island and the Boston contingent gathering at the Sterling Inn. As reported by Mal Eales, the ever faithful, the '18 men from Gotham gathered from 10 a.m. on, mostly on. "Though the day was cloudy and cool, we managed to have a fair time. About 30 showed up to swim in the pool, play golf, tennis, or bridge, dance, and feed the inner man. Charlie Taverner rocketed in for lunch, looked the gang over, and then decided it was all right to bring friend wife. So he motored over to Garden City and had her back with him in time for dinner and the evening.

"Among others present were: Herb Germain, Sid Judson, Pete Sanger, Ken Reid, Bill Foster, Granny Smith, Sax Fletcher, Nat Krass, Pete Harrall, Walt Robertson, Bill Neuberger, Clarence Fuller, Eve Rowe, Shorty Carr, John Cassidy, and myself. All of the last eight alleged gentlemen brought their other halves. Ned Longley had to be in Chicago, but Hjordes (a dime says you can't get this right in print) heard so much about our Tenth Reunion that she decided to come anyway and we were certainly glad that she did.

"During the afternoon your impetuous correspondent decided to dig up a little greensward without benefit of that agricultural implement with which the Etruscan husbandman smote the bosom of mother earth, for which cause he went forth upon the golf links with Krass, Harrall, and Robertson. The 18 (magic number) hole course took us on a sight-seeing tour of Long Island by way of Montauk Point, New London, and Stamford. When we dragged our weary bones back for dinner, we had lost several balls, dug up 80-odd acres of turf, and enlarged our vocabularies plenty. The water holes on other courses are mud-puddles compared to the bays, gulfs, and rivers one is expected to make a non-stop flight across on that course. I never saw so many misplaced bunkers before either. We died for dear old M. I. T. all along the way.

"Meanwhile the girls played bridge. During the dinner, dancing and impromptu entertainment by John Emerson

Cassidy (than which there is no other whicher), Shorty distributed the spoils. Alice Rowe took the honors for the high score at contract; Miss Gould the low. In golf, Sax got the NRA emblem for the longest distance in the fewest strokes; myself the goose egg. As part of the new deal I think the time has come for us duffers to share our NRA strokes with the experts. I'm working right now on an instrument to discourage honesty after one passes, say, 140. The party broke up about 10:30, regretting that we did not have a longer stay and more of the class with us."

The affair at the Stirling Inn broke up at a later hour, but with exactly similar regrets. Present were: Ralph Mahoney, Ray Miller, Lovejoy Collins, Joe Keely, Magoun, Harry Coyne, Al and Mrs. Sawyer, and our Gretchen. The day was too wet for golf and the jubilant conversation made the bridge game an inferno of uncertainty as to whether the two of spades had, or would be, played. An impartial observer would never have known that most of us had ever had an engineering education, but he would have known that we had had something — two lobsters, for instance. Were they good!

Now we look ahead to our Twentieth, when we shall be rounder, grayer, and balder, but with the added years — even more enthusiastic.

The summer has brought a wealth of other class material. Yale Evelev says Europe was fine. Uncle James Longley has been made music chairman of the East Orange Rotary Club. Alan Bridgman Sanger has set up an office at 60 East 42d Street as a councilor to small advertisers. He writes that he used up more lead pencil on that Long Island golf game than even Mal Eales, double figures being necessary for most of the holes. Jim Flint wrote us from Denver, hoping that better days were on the way. Since then the Associated Press reports that the Castlewood Dam that has kept three miles of water impounded in the hills above the city for irrigation purposes burst at 1:20 a.m. in August. The torrent cascaded down Cherry Creek. Having stood in the door of Jim's machine shop and kicked pebbles into said creek, and knowing that the railroad station, from which logs had to be extracted, is a quarter of a mile from the creek, we know that Jim has been having his troubles. Imagine a cloud burst in a machine shop. It's the sort of stunt Heracles used to clean the stables of Augeas!

Stan Cummings left a note on our desk in July conveying greetings and surmising (correctly) that we were in Chicago. He had just come from there. While at the Fair we saw Richard Smith, Carlton Tucker, Harold Weber, Franklin Wells, and Norman Dawson. Also very much in evidence were the Adler Planetarium and the "modern" wooden house, both designed by Ernest Grunsfeld. On exhibition but not conspicuous was a text on the "History of Aircraft" by an '18 man and one of the '22 boys.

1918 Continued

From Harold Weber comes a communication with the injunction to print it without editing. So be it. "I have known our loquacious Secretary, Mr. Magoun, for a great many years and had always believed that he was fully aware of what constituted correct dress for almost any occasion. Because of this I was very much surprised to find him wandering around the lobby of one of the biggest and best hotels in Chicago about eight o'clock in the evening dressed in a wrinkled blue cotton shirt, open at the neck and minus a necktie, a pair of faded corduroy knickers, golf stockings of an indescribable color, and a pair of somewhat soiled light-colored sport shoes.

"Our Secretary seemed much disturbed and, between fruitless attempts to hide behind pillars, explained to me that he expected his cousin to arrive at any moment with clothing suitable for an evening meeting which he planned to attend. I finally discovered that his cousin was supposed to be in one of the hotel ballrooms so I finally agreed to go up and try to find the cousin and the clothes. I did succeed in locating the cousin, only to find that he had brought with him nothing but an extra necktie. The best I could offer our worthy Secretary was a chance to wash his face and comb his hair in my room. The last I saw of him he was making a brave attempt to sneak into a back seat at the meeting without attracting any attention."

It is true that I unavoidably attended the Economics Section of the A.S.M.E. in some such costume. Joe Barker '17, Dean of the Columbia Engineering School, was there in shirt sleeves — and smoking a pipe. Chicago is sometimes hot.

No fewer than eight copies of Frederick J. Haskin's syndicated "Answers to Questions" were received as a result of his July 12 offering, the reason being the following item: "Q. Please name some prominent men who collect ship models. — A. President Roosevelt, H. H. Rogers, Allan Forbes, James Farrell, Col. William Green, and F. Alexander Magoun are all interested in ship models." What chortling the boys must have done over that! Without fear of error I hereby charge Mr. Haskin with making up the question himself after having read Ernest Elmo Calkin's article "Hobbyhorses" in the May *Atlantic Monthly*. See the first paragraph on page 602. How easily the truth can be distorted.

Since the class was circularized concerning the establishment of a fund to perpetuate the memory of Bill Ryan who passed away in May, many letters have come to your Secretary expressing grief that Bill should have been taken just as he was entering upon a really large usefulness at Technology and expressing sympathy with the idea of such a memorial. He certainly was one of those rare teachers who both stimulate and befriend their students. May the fund grow rapidly and well. — F. ALEXANDER MAGOUN, Secretary, Room 4-136, M. I. T., Cambridge, Mass. GRETCHEN A. PALMER, Assistant Secretary, The Thomas School, The Wilson Road, Rowayton, Conn.

1920

The only members of the class whom your Secretary has seen during the long interval between the last Review and this one are: Stanley Bragdon, who was kind enough to pay me a call and with whom I had a very pleasant visit (Stan is now located in Boston and is handling New England sales for the Heinn Company, makers of high-grade commercial binders and loose-leaf equipment); Ned Murdough, whom I stopped to see at Portland, Maine, where he is still in charge of Cities Service Company, Portland District (Ned has moved from Falmouth Foreside to Woodfords); and Bud Cofren, who is running the Suffolk Printing in Cambridge. Bud has recently become a proud father. It was good to see these familiar faces again.

I saw Heinie Haskell, the worsted magnate, way back last spring. He was about to move his plant from Pawtucket to Moosup, Conn., where his Brunswick Worsted Mills are now operating in a fine, big, modern mill, just in time to cash in on the New Deal.

Bob Bradley has moved from Melrose Highlands to Belmont, address 399 Winn Street. The Rev. Franklin H. Blackmer has come to Montello, Mass., from Urbana, Ohio. George Rowe's new address is 72 Somerset Street, Wethersfield, Conn. John Nolen is now in Washington and may be reached at 3134 P Street, N.W. Harold Kepner is way out in Logan, Utah. N. G. Smoley has left Davenport, Iowa, for Fort Wayne, Ind., where he is with the Lamp Department of General Electric Company. Arthur Merriman is living at 2265 Chatfield Street, Cleveland Heights, Ohio. John McLeod's new address is 1434 El Miradolo Avenue, Glendale, Calif. Sidney Griffin may be reached at 131 North Main Street, Lombard, Ill. Grant French has left Cincinnati and is now at 35 Victoria Street, Lowell, Mass. Bill Forbes is living at 38 Oxford Street, Fairhaven, Mass. Franklin Badger's new address is 1368 Commonwealth Avenue, Allston. Ed Brickett has left Allentown, Pa., and is now in North Chelmsford, Mass. Scott Carpenter is with the Waltham Watch Company and his latest address is Egypt, Mass. I don't know whether this is summer or permanent. Harland Gray is located at 60 East 42nd Street, New York.

Perk Bugbee has been chasing all over the map for the National Fire Protection Association and saw Earl Zimmerman, who is a big lumber man in Portland, Ore., and also was in touch with John C. Wilson, commonly known as Woody, who is with the Telephone Company in Seattle. Perk also found time to hobnob with some of the stars at Hollywood, but is back home safe by now.

We are glad to welcome Ed Ryer back from Detroit and New York. Ed has become associated with the Barbour Stockwell Company in Cambridge and his address is 119 Allerton Road, Newton Highlands. — HAROLD BUGBEE, Secretary, 7 Dartmouth Street, Winchester, Mass.

1921

A sheaf of copy paper from those genial Review Editors and a cheery letter from Ray start us on another year of monthly meetings on these pages. The 13th such year, for the statistically minded. May it be a year of health, happiness, and success for everybody. Here's how, with a stein on the table, a stein of brown Octoberale, and a good songring clear!

One by one the few remaining members of Bachelor's Row succumb and desert the ranks. After cryptic remarks at our Tenth Reunion, no wonder this self-styled "crusty" one failed to send us an announcement: Miss Louise G. Currier, daughter of the late Mr. and Mrs. Frank Currier of Brooklyn, N. Y., was married to Donald Judd Swift, son of Mr. and Mrs. William C. Swift of Cambridge, in St. John's Memorial Chapel, Cambridge, on April 24. The couple are residing in New York City, where Don is associated with the United Electric Light and Power Company on miscellaneous engineering in connection with underground transmission and distribution.

Andrew D. MacLachlan, development engineer with the B. F. Goodrich Company, is President of the M. I. T. Club of Akron. Andy is also a Mason and a member of the Burns Club, the A.S.M.E., and the National Rifle Association. His hobby is firearms, an avocation he indulges by shooting clay pigeons at the Akron Gun Club and by collecting guns dating from the old flintlock muzzle-loaders to present-day rifles. Andy and Mrs. MacLachlan and Master Andrew Laird, aged 5, make their home at 148 North Portage Path, Akron, Ohio.

Professor C. E. Locke advises that H. E. McKinstry sailed during the latter part of February for the Transvaal, where he expected to remain for several months. — Dr. F. S. Dellenbaugh, Jr., was the chairman of a conference held at the institute on the subject of rectification of alternating current. Dr. Dellenbaugh, who has done extensive work in the design and application of rectifiers, is President of the Delta Manufacturing Company of Cambridge.

From the New York *Sun*, June 9, 1933: "The old guard lambasts President Roosevelt's professors, and so it may be that the appointment of John Barriger to help out A. A. Berle is not a *non sequitur*. Mr. Berle, with a brilliant academic background, is adviser on railroad affairs to the Reconstruction Finance Corporation. Mr. Barriger, while a graduate of the M. I. T., is a journeyman railroad man, for ten years with the Pennsylvania, an expert on railroad securities, and President of International Carriers, Ltd. He has been made assistant to Mr. Berle, thereby enhancing the prospect for successful coordination, say the experienced railroaders. He hails from Dallas, Texas, joining Kuhn, Loeb and Company, as a statistician after leaving the Pennsylvania." Congratulations, John.

A new membership list of the Acoustical Society of America lists Harold F. Stose at 117 Midland Avenue, Montclair,

1921 Continued

N. J. Drop in on us, Neighbor Stiessen, and let's have your news. Recently H. R. Kurth and Mrs. Kurth visited us on a motor trip, part of which was spent at Albany, N. Y., where Chick attended a convention in connection with his duties in the Generating Department of the Edison Electric Illuminating Company of Boston. Mr. and Mrs. Maxwell K. Burckett and pretty little Phyllis, aged 3, were also recent visitors. As announced in these columns, Max is still in the advertising game, with headquarters at 420 Lexington Avenue, New York City.

The *Physical Review* for July 1, 1933, contains a paper by Professor M. S. Vallarta on the subject "Interpretation of the Azimuthal Effect of Cosmic Radiation." Val's picture appears in a descriptive leaflet as a member of the staff of the United Business and Investment Service of Boston.

A raging storm is sweeping New Jersey as we prepare these notes. May it blow us some news from each and every one of you. Despite shorter NRA hours for Class Secretaries, we need more news! — RAYMOND A. ST. LAURENT, *Secretary*, Rogers Paper Manufacturing Company, South Manchester, Conn. CAROLE A. CLARKE, *Assistant Secretary*, University Avenue, Chatham, N. J.

1923

Sixty-five showed up for the Tenth Reunion, June 15-18, and found the Riversea Inn, Saybrook, Conn., ideally situated for the affair. There is inadequate space in these, the first notes since the event, to cover it in detail. A bound 32-page report of the gathering, including a photo of those present, has been prepared by Pete Pennypacker as Reunion Historian. This is being sent to all those present as a souvenir and also to all those who sent in \$2 class dues as contribution to the reunion finances. Pete tells me there will be a few extra copies which will be sent to any additional members of the class who care at this date to remit class dues. Send a check for \$2 to J. A. Pennypacker, Room 661, Eleven Broadway, New York City. The report has been made possible by class dues received and its cost makes limitation of its distribution necessary.

To get them on record, the names of those present at the reunion were, by courses: I, Arne Ronka, Bill LaLonde, Burt McKittrick, Jim Robbins; II, Steve Miller, Red Abbott, Frank Haven, Howard Russell, Walt Marder, Jim O'Connor, Larry Barstow, H. B. Golding, Bob Shaw, Lem Tremaine, Don Height, Jack Zimmerman, Doc Randolph, Roy Sterling, H. B. Keppel, Herb Hayden; III, Mal Carey, Norm Weiss; V, Harry Nanajian; VI, Paul Plant, Dick Frazier, Rod Goetchius, Joe Fleischer, Charlie Mapes, Ed Thimme, Frank Salus, Mike Drazen, Tom Rounds; VI-A, P. C. Smith, Charlie Burke, Bob Henderson, Gerry Carper, Miles Pennybacker; VIII, Alan Allen, Walt Dietz; IX-B, C. A. Dutton; X, Toby Pearson, Art Belyea, Frank Hobson, Luke Barrett; X-A, Plummer Squibb, Jack Cochrane; X-B, Jack Keck,

Dave Kaufman, Chief Myers; XI, Fred Almquist; XII, J. R. Elliott; XIII, Clarence Chaisson, Pete Pennypacker; XIV, Dave Skinner, Johnny Sands, Chan Clapp, O. L. Perkins; XV, Kitty Kattwinkel, Fred Travers, Bondy, Bob Hull, Penn Howland, Ray Brink, Al Redway, Ed Schmitz.

The Tenth Reunion was a milestone which showed how far we have gone in taking our places in the affairs of today. It was pleasant to review past frolics of the class through the medium of movies provided by Jack Cochrane and Al Redway. It was satisfying to have Professor Dick Frazier report that there were no less than 17 men from the Class of '23 on the Faculty and instructing staff of the Institute, and it was inspiring to hear Professor Jack Zimmerman tell of the part these men are taking, with President Compton, to evolve an even greater Technology. Your Secretary, through some research which Bob Hendrie undertook, was able to make a report that it is likely that approximately \$80,000 may be presented to the Institute by the class 15 years hence as the result of the endowment insurance project.

So satisfactory a spot did Riversea Inn prove to be, that Bob Shaw sponsored the idea that it be the place for informal reunions of as many or as few as see fit, in the years intermediate to the formal reunions. The second week-end in June will be the time and next year's calendar should be marked accordingly. No notices of these week-end parties will be sent out and those attending will make their own arrangements with the Inn, come when they can, and leave when they have to.

The business of rounding up the gang brought responses which showed what some of the boys have been doing. Erwin G. Schoeffel, X-A, reports that he is assistant superintendent of the Aluminum Company of America's works at Massena, N. Y., with which company he has been since graduation. He was married in October, 1926, to Marjorie L. Sibley (Wellesley '23). They have two children: David Erwin, 4, and Nancy Sibley, 1½. Batist R. Hauelsen, XIV, reports that he is married and has two children, a boy and a girl. He is located at Indianapolis with Aluminum Colors, Inc., doing research and development work.

His widow reports that John G. Tribull, II, died in 1930 from tuberculosis after an illness of two years. In addition to his wife, he left a small daughter, now 5 years old. — Roger Valentine, X, wrote from Monterrey, Mexico: "I weep — to no avail — that I cannot be among you, but hope you are in the midst of a big time while I continue watching that Mexico continues in the production column of silver and gold with the *Cia. Minera de Peñoles* in Old Monterrey."

Bill Stewart, XV, wrote from Los Angeles that he was serving a six-months' term on a federal grand jury which he expected to keep him tied down until this September. George Bricker, VI, said that a struggle to get through bar examinations would keep him away.

The following from Warren Center, V, of Lynn, shows a fine spirit: "Six years ago, as many of my classmates know, I was stricken with infantile paralysis which affected both my arms and my legs. While I am recovering slowly, I am still unable to get around very much. For this reason I shall not be able to go to the reunion. I missed the Fifth Reunion and had hoped that I would be able to attend the Tenth one without fail. But no luck. I want you all to know that I am interested in 1923 and I hope the Tenth Reunion will be a great success."

Forrest F. Lange, II, did some fine work contacting men in the Middle West. His own letter, and one he sends along from Ab Johnson, XV, are both worth quoting from. Lange wrote: "For those of my classmates who are interested in vital statistics, I am pleased to make the following contribution, inasmuch as I suggested that all Hoosier '23 men do the same for the benefit of those who attend the reunion. You may remember that I was married to Esther H. Glidden of Jefferson, Maine, in 1922. We have no children. Since graduation I have been with various subsidiaries of the Union Carbide and Carbon Corporation. The specific organizations with which I have been associated, with various titles and duties, are: *Linde Air Products Company*, Buffalo, 1923-1924, 1930-1931, manufacturers of gas compressors, apparatus, and equipment used in the production of oxygen, acetylene, argon, nitrogen, helium, and other rare gases; *Linde Air Products Company*, New York Office, 1924-1930, engaged in the design of new plants, machinery, apparatus, and equipment, for Linde Air Products Company, Prest-O-Lite Company, Carbide and Carbon Chemicals Corporation, and other subsidiaries of the corporation. *Prest-O-Lite Company* in Indianapolis, Ind. (opposite the Motor Speedway), manufacturers of cylinders for the transportation of compressed gases, valves, appliances, and so on, for the many subsidiary companies of the corporation, and also outside companies in the electric refrigeration field. I am now located at this factory.

"Herewith is a letter from Abbott L. Johnson, in Muncie, which is worth the effort that I expended in contacting each man in the Hoosier state. I join him in extending an invitation to you all to look us up if you happen to be in this part of the state. However, the last page of his letter, relative to the American Legion, was enough to turn my hair gray, for only last Sunday I was publicly installed as Commander of the Speedway Post of the Veterans of Foreign Wars of the United States, and am due to spend the week-end at the annual departmental encampment at Madison, Ind."

Ab Johnson's letter said: "Last year we had made plans for going East this summer, principally to allow me to attend this reunion, but these plans had to be changed and I am most disappointed in not being able to carry them out. You asked for information on vital statistics.

1923 Continued

I was married in 1925 to Miss Elizabeth Gregory, of Syracuse, N. Y. We have one daughter, Joanne, born July 17, 1928. Geographically, I am located in Muncie, Ind., which is in the east central part of the state.

"With regard to my line of work and my connections, I give you the following information: *Warner Gear Co.*, manufacturers of automobile transmissions. At present I am specification engineer and have been a director of the company since 1926. *Warner Machine Products, Inc.*, manufacturers of replacement parts, water pumps and bushings. Vice-President and General Manager. Have been a director of this company since 1925 and Vice-President since 1932. General Manager since January, 1933. *Glascok Bros. Mfg. Co.*, manufacturers of bottle coolers and refrigerators, especially for Coca Cola coolers and beer bottle coolers. Vice-President. Have been a director of this company since 1924 and Treasurer until January, 1933. *Muncie Air Port, Inc.* This company owns the land and hangar which accommodates 20 ships at Muncie's air port. I have been President of this company since it was organized in January, 1932. *D. D. Gregory and Company, Inc.*, Syracuse, N. Y. This company is one of the leading wholesale distributors of fruit and produce in Syracuse and I have been Vice-President and a director since November, 1932. This requires periodic visits to Syracuse at which time I run into some of my Tech friends on the train or in Syracuse. *The Johnson Building.* At the present time I am manager of this business block, probably the best business building in Muncie. Have had this job since May, 1932." The last page of Ab's letter, which caused Lange to blanch, is taken up with a rehearsal of the tribulations of an American Legion Post Commander, which job Ab has been holding this year at Muncie.

Fred Mann, II, sent in a clipping from the *Taunton Gazette* announcing the engagement of Henry F. Culver, II, and Virginia Condie, a St. Louis girl and Smith College graduate. Culver's absence from the reunion needs no explanation beyond the fact that he was getting married in Chicago that particular week-end. A honeymoon in Europe was projected. A card from Waldo Fox, XV, announces the change of his address from Belleville, N. J., to Fort Smith, Ark. — HORATIO L. BOND, *Secretary*, 195 Elm Street, Braintree, Mass. J. A. PENNY-PACKER, *Assistant Secretary*, Room 661, Eleven Broadway, New York City.

1925

Your class secretariat has been enjoying a vacation from everything except business this summer, with the result that the notes are a bit scarce in the opening issue. However, here they are:

Charles Willard Allen, XV₃, was married on July 3 to Miss Dorothy L. Christie, daughter of Mr. and Mrs. Willford Christie of Scarsdale, N. Y. The bride is a graduate of the Sargent School of Physical Education. For a wedding trip they went to California,

and returned by way of the Panama Canal. Their home will be in Acton Center, Mass.

Paul Blampied was married on June 17 to Miss Dorothy E. Mellish, daughter of Mr. and Mrs. William E. Mellish, of West Roxbury. They were married at the West Roxbury Methodist Episcopal Church. They took a trip to Bermuda, followed by a cruise on Paul's auxiliary cutter (name of cutter unknown). Their home is at Pawtuxet Neck, R. I.

Professor Glennon Gilboy and Mrs. Gilboy sailed on June 18 for Stockholm, Sweden, by way of England aboard the White Star Liner *Georgic*. The purpose of the trip is "for special study" or "a vacation," according to which line of the account in the *Boston Record* we wish to believe, but if I know Glennon, the first suggestion is the correct one.

Your Assistant Secretary visited Frank Preston at Stonington, Conn., over the Fourth of July week-end, and made plans for replacing or reorganizing the Course Secretaries so as to have the class news service on a sound basis. We already have a volunteer for Course I in the person of Kenneth A. Lucas, of 435 Franklin Street, Reading, Mass. All members of this Course having news or information for The Review should send it in to him while it is still fresh. The secretaries for the other courses will be announced in early issues as soon as their acceptances are received. Any news from those whose course secretaries have not been announced should write directly to the Assistant Secretary (address below). — HENRY V. CUNNINGHAM, JR., *Secretary*, 43 Chestnut Street, Boston, Mass. HOLLIS F. WARE, *Assistant Secretary*, 16 Smith Avenue, Reading, Mass.

1926

Our intrepid aeronaut, John Jacob, having finished his term of hedge-hopping and daisy-clipping in the Marines, has turned again to the mundane practice of engineering. He is now employed at the Glen F. Martin Company in Baltimore, that city of monuments and marble steps. — Our galloping geologist, Bill Millar, after participating in the Swayze gold rush in Canada, hid himself last May to Utah, where he took a job with the State Line Mine on the Nevada boundary. Bill, it will be remembered, served a term in Africa after graduation. By virtue of these many excursions into heathen countries, he must be the class's champion traveling man. — Colin Reith is serving the oil barons as a petroleum engineer in Iraan, Texas.

Ted Mangelsdorf, who as an undergraduate almost got *The Tech* listed on the New York Stock Exchange and who after graduation turned his financial gifts into ploughshares by becoming a professor at the Institute, has also taken up residence in Texas. He is at Port Arthur researching for Texaco. We wonder if this involves excavation of Pleistocene jokes for Ed Wynn. — While we have had professorships and sundry other academic titles conferred upon ambitious members of the class, not until now has anyone taken up

the trade of registrar. Elmer C. Warren, who has been teaching mathematics, now holds that office at Colby.

C. E. Tonry is engineer and superintendent of the Gold Run Mining and Milling Company at Telluride, Colo. The latest dispatch describes him as busy constructing a mill to treat gravel from that part of the San Miguel River which has received tailings from a number of famous producing mills in the upper end of the valley. There is, may we note parenthetically, a pleasingly salacious twang to the jargon of the mines. — In June your Secretary went slumming at the Chicago Fair with Bob Brand, whose job it now is to advertise the Barber-Colman Company of Rockford, Ill. Bob is doing well and last winter escaped work long enough to steam down to the West Indies and the Canal Zone with his wife.

Recent visitors to the Institute include: Sam Cole, mentor of American fencers, now living in the East after a sojourn in Los Angeles; M. W. Davidson, who finds time to work for the Bell Telephone Company at Harrisburg, Pa., despite his duties as Secretary of the Technology Club of Pennsylvania; Flint Taylor, the Duke of Newton Centre; and Elton Staples, gentleman farmer of Wakefield. Elton is the father of two boys.

Joe Levis continues his triumphant course as America's premier swordsman. Since Joe, as a callow undergraduate, "went out" for fencing, probably to get out of monkey drill, he has risen steadily in the sport. His great gifts as a fencer are admirably abetted by his unimpeachable sportsmanship.

Bernard P. Rosser, photographer by avocation, who lives at 50 Glen Ridge Avenue, Glen Ridge, N. J., is an engineer with the New Jersey Bell Telephone Company at Newark. He married Miss Betty Connolly, of Columbus, Ohio, in October, 1929. They have a daughter, Barbara, born July 18, 1930. — Iron-ton Austin Kelly (and who can forget the Kellys?) was married on June 29 to Miss Adrienne Warren of Mamaroneck, N. Y. — The engagement of Lucie Weart Lord to Stuart Craig Keen has been announced. Miss Lord resides in Tarrytown-on-Hudson. Keen is connected with the firm of Ward, Gruver and Company, successors to Keen and Ward, of which firm his father, the late Frank H. Keen, was senior partner. — Mr. and Mrs. Eben Haskell have announced the birth of Joan Adams on August 6, weight seven and a half pounds.

Bill Rivers has been in India for several years and until recently he wrote under the address "27 Jail Road, Lahore", an address that naturally aroused our apprehensions, not to mention certain Freudian instincts. That apprehension has been partly dispelled, however, for it seems that the Socony-Vacuum Corporation, for better or worse, occupies 27 Jail Road, Lahore. That Bill is at large has been further reinforced by the receipt of a clipping from the *Statesman* ("Supreme in sales and distribution all over India" — price: one anna.) which reads

1926 Continued

as follows: "Marriage. Rivers-Frankova — On the 20th February, by the Senior Registrar of Marriages, Calcutta, Wm. Flournoy Rivers, son of Major-General Wm. C. Rivers, D.S.M., the Inspector-General, U. S. Army (retired), and Mrs. Rivers, and Sonia Boris Frankova, daughter of the late Boris Frankova, Moscow, and Mme. Frankova, Shanghai."

From the professional and domestic items presented above, it is obvious that the class is making its mark in many fields. — J. RHYNE KILLIAN, JR., *General Secretary*, Room 11-203, M. I. T., Cambridge, Mass.

COURSE VI-A

In June it was my duty to visit the West Coast officers of the company and knowing that the last time I heard from Bill MacInnis was from Reno, I dropped a card to him there and was pleasantly surprised to contact him.

It was not my luck to see Mac but I learned he is still with the Sierra Pacific Power Company. In reply to my request as to his life and a more definite explanation of "We" in an invitation he wrote: "Yep! it will be two years July 3 since the double-harness idea took place and we were both disappointed that you couldn't stop this way on your trip north. We realize, however, that Reno is out of your way either by train or plane, but next time you better make it your business to make arrangements for a stop here. We have a nice little stucco house in the nicest residential section with an extra bedroom. The lawn and flower gardens pretty nearly keep me busy in the summer evenings, but I get quite a kick out of monkeying around. I guess the old farm existence still lingers in my inner soul. We have a Chevrolet roadster with which we have a lot of fun. That also has to be freed from dust and grime every so often. We are planning to take a trip this week-end into Yosemite National Park. Neither of us has been there yet. Probably leave here Saturday A.M. and get home Tuesday P.M."

"As far as my work goes, it sure would be difficult to describe. Officially, I'm Secretary to the President. All the mail incoming and outgoing goes over my desk. Have a stenographer who is responsible for all mail and files. Am responsible for all estimates of earnings and expenses and have to do something if actuals don't turn out as good as estimates."

"In these tough times, particularly during the past year, I have had to interview a lot of people who are having difficulty paying their accounts. They get to the point where they are no longer satisfied talking to the credit manager or Treasurer and must see the boss. The boss won't see them, and there's where yours truly intervenes. I know all the hard luck stories which exist. — You probably remember Mr. Lemmon, who used to be in charge of personnel and gave us our start away back in 1924. Well, he is here now as general sales manager. His health failed back there, but he gets along fine here. He came from here

originally. — Well, let me hear from you anyway." — BENJAMIN P. RICHARDSON, *Secretary*, 3 Osceola Drive, Greenwich, Conn.

1928

COURSE I

Ken Clark wrote to say how he hated to miss the reunion but Davenport is a long way from Winchendon and his work on the Mississippi is keeping him busy. Rice wired his regrets from Rutland, Vt. He is busy in that district as Camp Superintendent for the U. S. Forest Service, engaged in construction work needed by the C. C. C. Address him care of U. S. Forest Service, Danby, Vt. Weinberg missed the reunion because of an appointment as 1st Lieutenant with the C. C. C. and he is now with the 275th Company at Donnelly, Idaho. Bill Kirk was very busy keeping things moving at Winchendon. In Boston he and another Harvard Business School graduate are associated in a business of their own, acting as financial advisers for a number of large estates.

Bob Kales was also on hand at Winchendon and I discovered that at least two letters that he had written to me had somehow gone astray. I can remedy those slips of the P. O. by telling you that Bob was busy for some time in building construction, first on design, then handling some construction in Buffalo. When building slumped, he spent a year in Europe and returned to this country only recently. Art Josephs is another to return from Europe in the past few months. He spent a year and a half there, mostly in Vienna, and brought a doctor's degree back with him. We still have a "Continental Representative," however, as Dave Mathoff sailed about August 1 with Moscow as his ultimate destination. If things work out favorably, he plans to spend some time there engaged on the heavy building program which that city is finding necessary.

Perhaps I should end this set of notes by reminding you that a batch of letters, particularly from those of you who haven't written in ages, will be a big help toward making these notes a monthly contribution to *The Review*. — GEORGE P. PALO, *Secretary*, 426 East 238th Street, New York, N. Y.

1929

The all-important announcements are now in order and the best wishes and congratulations of the class are extended: The engagement of Miss Mary Cleveland, of Concord, Mass., to Gus Nicholson, VI, was announced late in June. — The marriage of Miss Ruth Whitley, of Winchester, Mass., to Hal Gerry, V, took place late in June in Winchester. Hal received his Ph.D. in chemistry from M. I. T. in 1932 and has since been a member of the research staff in chemistry.

On June 17 the marriage of Miss Jean Ayr of West Hartford, Conn., to Paul Baker, XVI, was celebrated in Hartford. Bob Riley, XVI, was best man. Paul completed the Air Corps primary and

secondary flying schools after leaving the Institute. — Somewhere along the years since we left Boston, Jo Llanos, II, slipped in not telling us about his marriage. Only a Christmas card each year to keep track of him, so imagine our surprise to receive a notice of his becoming the proud father of a son, June 27. Congratulations, Jo, we hope he's going to be an engineer.

Charlie Pease, XVII, proudly announces the birth of a son on August 12. In fact, Charlie was so proud of it that he edited a midget magazine, the sole purpose of which was to shout the glory of the event. It was by far the most clever announcement of such an event I've ever seen. If you remember correctly, that makes Harry Weare, I, an uncle, for Mrs. Pease is Harry's sister. — Earle Erickson, XV₂, sent in an interesting clipping from the *Boston Post* of June 3. It covered the 1933 class banquet and Professor Rogers' speech there, in which he considers the Class of 1929 responsible for the severity of the depression. The clipping reads as follows: "Reaffirming his belief in the advice he gave to Tech seniors in 1929, Professor Robert E. Rogers of the Institute's English Department told members of the senior class at their class banquet, held in the Old France restaurant last night, that had college students of the land accepted it and married the boss's daughter, the depression would have taken a much different turn."

"The trouble is," said Professor Rogers, "that they did not do it and as a result we have what we have."

"Professor Rogers admitted that it would have been pretty tough on the daughters, but contended the class that year needed something to wake them up. They were dreadfully dull and stupid, according to the professor, and something had to be done to stop them from dreaming of the days when they would become vice-presidents of large corporations."

From personal researches into social conditions concurrent with the depression, we have observed that some of the boys who married the boss's daughter in 1929 have also been supporting the boss through these last lean years. — EARL W. GLEN, *General Secretary*, Box 178, Fairlawn, Ohio.

1930

COURSE VI-A

For the most important news of the summer (to me), I am very happy to announce my engagement to Miss Hilda Blackmer, daughter of Mr. and Mrs. F. M. Blackmer of Melrose, Mass. We are planning to be married in the early spring. Hilda and I were classmates in Melrose High School and subsequently she was graduated from Vesper George School of Art in Boston. I could write for hours on this subject alone but there is more news I ought to spread.

I recently visited Frank Burley and his wife in Philadelphia and to my great surprise found Ray Bowley staying not far from them. Ray has joined Frank with Philco and is working in the radio production department. We spent a grand

1930 Continued

time riding around in Frank's new Ford V-8 and talking over the happy days at M. I. T. Ray and I found that we had a common bond in that we both would like to get to Boston more often than we do.

Prendy spent part of his vacation at the Century of Progress and is now back at the Western Electric Company in Kearney, N. J., working hard at a new job. — Wanny is in Chester, Pa., doing some heavy pipe smoking on the accounting end of some construction work for a Sun Oil Company refinery, if I read his letter correctly. — I understand that Bill Griffith may be running a ranch soon. If he does, his life-long ambition will be realized.

Does anyone, by any chance, know anything about Cillie? He seems to have dropped out of sight of everyone I have asked concerning him. — EARL E. FERGUSON, *Secretary*, 60 Eaton Place, East Orange, N. J.

1932

Rolf Eliassen promises lots of news for the next issue on a card I received from him. He has been studying this summer in anticipation of the general exam for his doctor's degree which he expects to take in October.

John Lawrence made a trip down to Boston in August and gathered the following news: Pete Shelby has joined up with some organization (name unknown) and is spending his time searching for gold in Peru. Bob Butler has a job in Mexico this summer and plans to return to the Institute this fall. Dick Hall is cruising around the State of Maine obtaining samples from the bottom of the lakes and ponds accessible by car, something to do with prospecting for gypsum. Dick Berry is still with the Porto Rico Shipping Service and working like a dog in New York City. John had the ingenious idea of sending out a post card addressed to me in his pleas for news to the members of Course XVI. As yet only two of these cards have filtered back to me. Ed Eddy is resting up and tutoring this summer. He expects to teach at a new college quite near his home in Huntington. Joe French is working at the E. G. Budd Mfg. Company, Philadelphia, in their high tensile department. He was married a year ago this month and his present address is 5321 Wayne Avenue, Germantown, Pa. — CLARENCE M. CHASE, JR., *General Secretary*, Chase D 33, Soldiers Field, Boston, Mass.

COURSE III

Kes on his visit here said he left the King Solomon Mines Company on June 15, giving up his job and then hitchhiking back east in 18 days. Coming back he stopped in Salt Lake City and called on the U. S. Smelting, Refining and Mining Company to see about a position, but they had nothing to offer. Since that time he has heard that they have a job for him in a new lead refinery, and when he was here, he was on his way back to Salt Lake City, to be there about September 1.

There are a number of others who have reported good fortune this summer so that a greater number of our fellows are now on payrolls. Bérubé, it was told in the July issue, had obtained a position with the Canadian Geological Service on a party going into the region south of the Mont Louis Rivière à Claude, and Marsoui on the north side of the Gaspé Peninsula. There were seven in the party beside a cook. Bérubé was acting as a geologist with the man in charge who was head geologist. Also there was a prospector and a telemeter man beside three *portageurs*. They have been making traverses to determine the structure and geology and also the contours of the country, and then spend the rainy days plotting these traverses. The country is hilly and steep, with dense woods and many flies. As a geologist, he runs traverses, and always has a man with him to carry his pack and prepare his meals. Up to the first week or so of July there were roads passable to horses for carrying baggage, but the appearances were different after that with the prospect of their having to carry their baggage which would amount in total to near 2,000 pounds at the start. Sounds like a pretty good load. Good luck to you, old boy.

A letter from Curtin also reports his having a job. He reported to the Republic Steel Corporation at Youngstown early this summer. He is in the inspection department in the tube mill. It is great to hear of our group getting located, and especially in jobs that are directly in their line. Curtin says also he was back at Tech the second semester this year and has completed all his work now for a master's except his thesis. Good luck on getting that and congratulations on your accomplishments so far.

Chapin also reports having gone to work for the Carnegie Steel Company at their Duquesne Works. He is in the Metallurgical Department on their Observation Corps, a group of fellows, all recently from college except one, who follow the steel from the time it is charged to the open hearths to the time it leaves the blooming mill.

Chadwick says he is still in the hardware business in Marblehead, Mass., working for William F. Cloon's Hardware store. Says his pay envelope looks like a Salvation Army offering hat, but he is enjoying it immensely, and from the way he speaks, expects to remain in hardware for the present. Says he is working, not clerking or loafing, about 70 hours a week, and doing a gardening job beside. He also says he can see lots of romance in the hardware business because every time he sells a pound of nails, perhaps 2,500 nails for six cents (I wonder if "nails" is the right word), he thinks of the hole in the ground at Lebanon and the plant at Bethlehem and the old nail mill at Worcester. I suspect he is right. It would take a good many nails to fill that hole in Lebanon.

Bearce's job at Pittsburg, Kansas, was over during the summer, and while on his way up to his and Haynes' gold

claim in Idaho, he landed a job with the North London Company at Alma, Colo. I hope to have some more details later. Haynes is still without a job, although he had one lined up with the Republic Steel Corporation at Russell, Pa., in their coal properties, and then he was notified he was not wanted. He said he had another good prospect in his last letter, so here's hoping he has something by now. He spent the early part of the summer going through the Middle West job hunting, and took in the Fair. — HENRY J. CHAPIN, *Secretary*, 101 Ardmore Avenue, Ardmore, Pa.

1933

Saw Art Hungerford the other day. He is up with the National Broadcasting Company and enjoying his work very much. They are now looking forward to moving into their new air-conditioned offices in Radio City some time in September. Pretty smooth!

Jack Andrews is visiting Europe and having a fine time. As I am writing, he does not know when he is coming home. Charlie Case is in England to continue his studies at Cambridge.

Two of our prominent men were married shortly after Commencement. Miss Frances Bone became Mrs. Dave Lee on June 9. They plan to live in New York. Pierre S. duPont, 3d, married Miss June Holcomb on the 24th of June. Congratulations, Dave and Pete, and lots of good luck.

Received word the other day that Charles Payne had married Miss Marcia Lane of Rochester during July. We haven't seen or heard from Red in a long time and hope things are prosperous with him.

Charlie McNeil has set a date sometime in the beginning of September. He is designing airplanes for Curtiss Wright in Buffalo. — The engagement of Miss Martha MacLeod to Jim Vicary has been announced. Jim is to be Professor Elder's right-hand man this year. Another former Dormite, Bill Harper, has announced his engagement to Miss Hazel Anne Moore.

It has been suggested several times that I include some information as to the success of the Class of '33 in finding employment. I think it a good idea and have tried to get the information. Upon asking the Personnel Office for some data, they stated that they have not felt justified in tabulating the results of the June census as only about 60% of the class replied. They are sending out a follow-up and would appreciate the coöperation of those who have not returned the questionnaire.

Word from Providence way tells us that Roger Congdon is working in Providence. — Jim Turner is spending much time in New Bedford. — George Stoll is working with his Dad in the grocery business. — Frank Gilmore is with the Taunton Pearl Works.

Let's try and make these monthly columns longer and more interesting. Join in the Share-Your-News-Movement. Share yours with your secretaries and

1933 Continued

the rest of the class. — GEORGE HENNING, JR., *General Secretary*, 163 Barbey Street, Brooklyn, N. Y.

COURSE I

I'm afraid I've been remiss about this secretary job, but I've been traveling since school closed and have had no permanent address. Tomorrow, I leave on a 2,800-mile trip to New Orleans and Shreveport, La., and I hope to drive around Florida and other interesting places.

On my way south, I visited George Wrigley, Jr., of Course I for several days. He is in Greenville, S. C., and working for Sirrene and Company, mill engineers, as office man and surveyor. He is working just now on a project which he developed in theory for his thesis at Tech and which they believe may be of practical value.

Horace W. Taul is at his home in Fresno, Calif., looking for a job which will compare with one offered him by a dam company in New York. If he can get one on the West Coast, he will stay, but if not, expects to be in New York City in September. — BURTON ELLIS is continuing his studies at the Institute.

As for myself, when I finish driving around, I shall start on September 1 at Lehigh University, Bethlehem, Pa., as a research fellow in structural steel. I hold a two-year fellowship there and expect to devote much of my time to photoelasticity and its application to the study of steel structures. — DOUGLAS M. STEWART, *Secretary*, care of Department Civil Engineering, Lehigh University, Bethlehem, Pa.

COURSE II

A card from Al Roscher says that he is touring the Middle West, stopping at the Chicago Fair. Good old Bob McKay is at home in Amesbury doing nothing and getting rather bored.

I am rather fortunate in being able to go into the family business and learn it from the bottom up. Boy! It's great fun sweeping floors and oiling machines and pushing trucks around the factory. After the whistle blows, there is a troop of sea scouts that takes all of my time. — STEPHEN H. RHODES, *Secretary*, 43 Cedar Street, Taunton, Mass.

COURSES III AND XII

Under course XII, the only news that I have is that Newton W. Buerger, in conjunction with his brother, Professor M. J. Buerger, has written a paper to appear in the next issue of the *American Mineralogist*, entitled, "The Crystallographic Relations between Cubanite Segregation Planes, Chalcopyrite Matrix and Secondary Chalcopyrite Twins."

In Course III, Munroe H. Kessler is with the Wareton Steel Company, at Wareton, Va.; John D. Rumsey is with the Chevrolet Motor Company at Detroit, working in the metallurgical department; Preben Oldenburg, IV, is with the Shell Petroleum Company and is located at Houston, Texas. He is working in the exploration department. — RAFFORD L. FAULKNER, *Secretary*, 54 Packard Avenue, Somerville, Mass.

COURSE V

A few of our number have already established themselves in the world of science and industry. Mr. and Mrs. Eitelman have established their residence in Buffalo, N. Y., where Mike is employed as a research chemist in the National Aniline and Chemical Company.

Earl D. McLeod is employed in research and analytical chemistry in the Pacific Mills at Lawrence, Mass. He is at present studying the properties of urea-aldehyde resins used in the manufacture of the new "creaseless" cloth.

George F. Garcelon is at present searching for a position, but he states he has several bright prospects and expects to join the ranks of the employed.

First among their number we find Edward Atkinson who will start working for a Ph.D. Ed has also obtained a half-time assistantship in the Chemistry Department, which, he states, will finance the project admirably.

Irving Crane and Robert Heggie are two more of our group who hope to have the letters Ph.D. tacked to their namesome day. At present, Irv is an assistant in Summer School, "trying" to keep the sub-freshmen from painting the door sills with Ni_3O or from squirting water from their wash bottles the length of the lab.

The writer also expects to be "among those present" when the fall term begins to earn the title master of chemistry. Alfred Bruce is another who expects to join our group if no position is in the offing. — EDWARD F. HILLENBRAND, *Secretary*, 52 Bayley Avenue, Yonkers, N. Y.

COURSE VII

Basil Parker is working as a councillor at Camp Quinapoxet at West Rindge, N. H., and expects to enter Harvard Graduate School next fall for an A.M. in biology.

Maria Bates is, as far as I know, the only one of the outfit who's actually going to work. She is going to teach community health and physiology at the Bube Junior High School in Malden. — Leo Karaian states that he is doing nothing in particular and spends most of his time looking for a job.

At the present time Leonidas Kontanis is operating a fruit store of his own, but expects to return to Technology in the fall. G. Pratt is entering the School of Mechanics at the University of Rochester. — GORDON G. PRATT, *Secretary*, 106 Broadway, Taunton, Mass.

COURSE VIII

Dave Treadwell is living in Paterson, N. J., and is working for the United Piece Dye Works, researching on a process for refining tin. He says he has taken up nudism in northern Jersey on week-ends and says it's swell.

The Metric Association has the services of Ed Goodridge, who is helping to make these United States adopt the metric system of weights and measures. Their stationery has a metric ruler across the top and an explanation of the system across the bottom, very fancy.

Chuck Fulkerson lives and works in Waterbury, Conn. I ran into him one day dining with a "fair one" at the Storm King Arms, overlooking the Hudson above West Point. Charlie Bell is in Waterbury, too, and Chuck sees him occasionally. — Dick Morse sailed for Europe on the *Europa*, July 22. He is living with a private family until fall when he is going to study in Munich.

I have been working all summer for Theodore Edison as a member of a little company called Calibron Products, Inc. We do almost anything, or will when asked. We build educational models such as the World Fair is using a lot of, patent models, and we are working on a couple of new products of our own. It is very chastening.

Ivan Getting has been with Calibron, too, this summer. He is sailing for England in September for two years at Oxford. — WILBUR B. HUSTON, *Secretary*, Y. M. C. A. of the Oranges, Orange, N. J.

COURSE XVII

The "Colonel" is a painter by instinct, but he worked himself out of a job after two days and nights. Then he went to the beaches for a while. He said he couldn't raise much cash with funds so low as they were. Bob "Engineer" Crane is still laboring for the brick and limemakers of America, and if they crash through with some more money, he'll be with them after October; otherwise not. What a bother this money business is for all of us. Bob and Galvin went to work for Uncle Sam for a couple of weeks at Fort Devans, and were in charge of a gang of C. C. C. boys tearing down a grain elevator. After the XVII fellows came home, the government dynamited the old bins anyway.

Coop and Jim are still in Boston. Jim continues his labors for Whittier, I learned indirectly, and Coop is still a huntin' after the brewery fell through. That last isn't meant to be taken literally, of course. Old Hard-Working Galvin is resting from his labors by working as an assistant-assistant-mechanic in a tannery; guess we should have had one of those 2.96 courses after all. — Sully has gone into the quantity survey business along with his brothers. It sounds like he is really working. "Can I take off ribbed slabs? Oh, boy!" says Sully.

Don Neil is still working for the Army. After being at Fort Monmouth for 18 hours, he was transferred to N. Y. C. for duty in the Army Building. Watch those stenographers, Don! Ed Rowell is in Philly doing odd jobs where his building training comes in handy. He's pointing up brick work, and putting on weather stripping, and getting a line on which contractor to take a job with.

Beau was working at quantity survey work for six weeks and is now timekeeping and clerking on a rush-order football stadium. Aside from getting up at six A.M. and getting home for supper at six-thirty, there is nothing to it except sitting around. Oh Yeah? — BEAUMERT H. WHITTON, *Secretary*, 2018 Roswell Avenue, Charlotte, N. C.



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